

**FIG. 1**

# REPLACEMENT SHEET

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## ATP binding

E. coli  
B. subtilis

MSYQVLARKWRPQTFADVVGQEHVLTALANGLSLGRIH**HAYLFSG**TRGVGKTSIARLLAK  
MSYQALYRVFRPQRFEDVVGQEHITKTLQNALLOKKF**SHAYLFSG**PRGTGKTSAAKIFAK  
\*\*\* \* \* \* \* . \* \* \* . \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

E. coli  
B. subtilis

GLNCETGITATPCGVCDNCREIEQGRFVDLIEIDAASRTKVEDTRDLLDNVQYAPARGRF  
AVNCEHAPVDEPCNECAACKGITNGSISDVIEIDAASNNGVDEIRDIRDKVKFAPSATY  
\*\*\* \* \* \* \* . \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

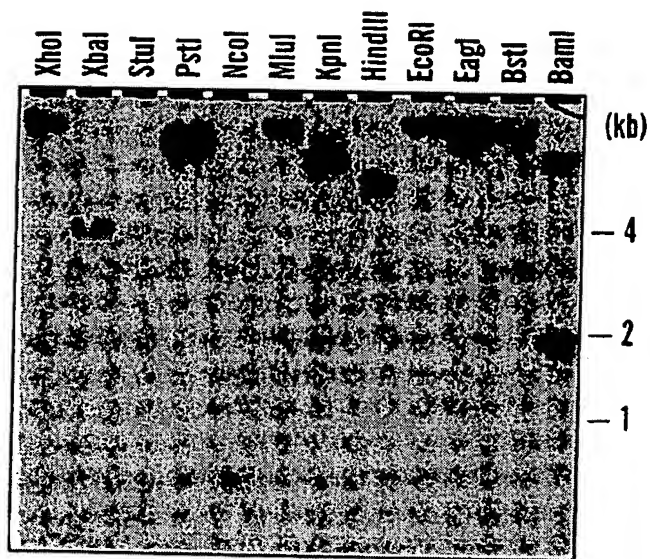
E. coli  
B. subtilis

KVYLIDEVHMLSRHSFNALL**KTLEEPPEH**VVKFLLATDPQKLPVTILSRCLQFHLKALDV  
KVYIIDEVHMLSIGAFNALL**KTLEEPPEH**CIFILATTEPHKIPLTIIISRCQRFDFKRITS  
\*\*\* \* \* \* \* . \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

FIG. 2

REPLACEMENT  
SHEET

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**FIG. 3**

# REPLACEMENT SHEET

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TCCGGGGGTG	GGGTTCCCAG	GTAGACCCCG	GCCCCCTCCCG	TGAGCCCCCTT	TACCCAGGCC	60
GCCACCTCCT	CCAGGGGGGC	CAAGCGGTGC	AAGGAGAGGA	ACGTCCGCAC	CACGCCCTAT	120
ACTAGCCTT	GTG AGC GCC CTC TAC CGC CGC TTC CGC CCC CTC ACC TTC CAG GAG GTG GTG met ser ala leu tyr arg phe arg pro leu thr phe gln glu val val				S.D.	180 (17)
GGG CAG GAG CAC GTG AAG GAG CCC CTC CTC AAG GCC ATC CGG GAG GGG AGG CTC GCC CAG gly gln glu his val lys glu pro leu leu lys ala ile arg glu gly arg leu ala gln					CAC	240 (37)
GCS TAC CTS TTC TCC GGS AC						
GCC TAC CTC TTC TCC GGG CCC AGG GGC GTG GGC AAG ACC ACC ACC GCG AGG CTC CTC GCC ala tyr leu phe ser gly pro arg gly val gly lys thr thr thr ala arg leu leu ala						300 (57)
ATG GCG GTG GGG TGC CAG GGG GAA GAC CCC CCT TGC GGG GTC TGC CCC CAC TGC TGC CAG GCG met ala val gly cys gln gly glu asp pro pro cys gly val cys pro his cys gln ala						360 (77)
GtG CAG AGG GGC GCC CAC CCG GAC GTG GTG GAC ATT GAC GCC AGC AAC AAC TCC GTG val gln arg gly ala his pro asp val val asp ile asp ala ala ser asn ser val						420 (97)
GAG GAC GTG CGG GAG CTG AGG GAA AGG ATC CAC CTC GCC CCC CTC TCT GCC CCC AGG AAG glu asp val arg glu leu arg glu arg ile his leu ala pro leu ser ala pro arg lys						480 (117)
GTC TTC ATC CTG GAC GAG GCC CAC ATG CTC TCC AAA AGC GCC TTC AAC GCC CTC CTC AAG val phe ile leu asp Glu ala his met leu ser lys ser ala phe asn ala leu leu lys					C	540 (137)

FIG. 4A-1

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[illegible]

**FIG. 4A-2**

# REPLACEMENT SHEET

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GAG CGC CTC GCC CGC CGC CGC GGC GGC TTA AGC CTG GAG GTG GCC CTC CTG GAG GCG GGA	1140 (337)
AGG GCC CTG GCC GAG GGC CTA CCC CAG CCC ACG GGC GCT CCT TCC CCA GAG GTC GGC	1200 (357)
CCC AAG CCG GAA AGC CCC CCG ACC CCG GAA CCC CCA AGG CCC GAG GCG CCC GAC CTG	1260 (377)
CGG GAG CGG TGG CGG GCC TTC CTC GAG GCC CTC AGG CCC ACC CTA CGG GCC TTC GTG CGG	1320 (397)
GAG GCC CGC CGG GAG GTC CGG GAA GGC CAG CTC TGC CTC GCT TTC CCC GAG GAC AAG GCC	1380 (417)
TTC CAC TAC CGC AAG GCC TCG GAA CAG AAG GTG AGG CTC CTC CCC CTG GCC CAG GCC CAT	1440 (437)
TTC GGG GTG GAG GAG GTC GTC CTC GAG GGA GAA AAA AAA AGC	1500 (457)

frameshift site

**FIG. 4B-1**

# REPLACEMENT SHEET

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CCC CGC CCG GCC CCA CCT CCT GAA GCG CCC GCA CCC CCG GGC CCT CCC GAG GAG GTA	1560
pro arg pro ala pro pro pro pro ala pro pro gly pro pro glu glu val	(477)
GAG GCG GAG GAA GCG GCG GAG GAG GCC CCG GAG GAG GCC TTG AGG CCG GTG GTC CGC CTC	1620
glu ala glu glu ala ala pro glu glu ala leu arg arg val arg leu	(497)
CTG GGG GGG CCG GTG CTC TGG GTG CCG CCG CCC AGG ACC CCG GAG GCG CCG GAG GAG GAA	1680
leu gly gly arg val leu trp val arg arg pro arg thr arg glu ala pro glu glu glu	(517)
CCC CTG AGC CAA GAC GAG ATA GGG GGT ACT GGT ATA <b>TAA</b>	1740
pro leu ser gln asp glu ile gly gly thr gly ile *	(529)
CGACCTCGGA CAAGAGACCG TGGACAACAT CCTCAAGCGC	1820
GGTGC GG GGG CTCCAGAAAG TGGTGGCCGA GGGCCGCCCC	1880
GATGACCGCC ACCAAGAAG CCATGGAGGC GCGGGCCACC	1940
GAACGTCTGC GCCGCCGAGG TCTCCGAGGG CAAGGTGAAC	2000
CGCCACCATG CTGAAGAACT TCATCTA	2027

**FIG. 4B-2**

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**FIG. 4C**



# REPLACEMENT SHEET

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Met ser ala leu tyr arg arg phe arg pro leu thr phe gln glu val gln glu 20  
his val lys glu pro arg glu phe lys ala ile arg pro leu thr gln arg leu 40  
phe ser gly pro arg gly val lys ala thr arg phe ala gln ala tyr leu 60  
gly cys gln gly pro asp val val asp ile leu lys ser ala phe thr arg leu 80  
gly ala his pro arg glu his leu lys ser ala phe thr arg leu 100  
arg glu leu arg ala his leu lys ser ala phe thr arg leu 120  
leu asp glu ala his met leu val leu phe thr arg phe thr arg leu 140  
glu pro pro ser arg arg ile leu val leu phe thr arg phe thr arg leu 160  
thr ile leu ser arg arg arg arg arg arg arg arg arg arg arg arg arg 180  
phe lys leu arg arg arg arg arg arg arg arg arg arg arg arg arg arg 200  
leu leu ala arg arg arg arg arg arg arg arg arg arg arg arg arg arg 220  
leu thr gly val arg arg arg arg arg arg arg arg arg arg arg arg arg 240  
gly leu ala arg arg arg arg arg arg arg arg arg arg arg arg arg arg 260  
leu glu val phe arg arg arg arg arg arg arg arg arg arg arg arg arg 280  
ala pro pro gln phe arg arg arg arg arg arg arg arg arg arg arg arg 300  
ala arg arg ser asp ala leu pro thr gly leu tyr ala ala phe arg leu 320  
ala ala glu ala leu pro thr gly leu tyr ala ala phe arg leu 340  
glu ser pro phe leu glu pro thr gly leu tyr ala ala phe arg leu 360  
trp arg ala phe leu glu pro thr gly leu tyr ala ala phe arg leu 380  
pro glu val arg ser glu gln lys val leu lys leu phe pro leu phe arg 400  
arg lys ala ser glu gln lys val leu lys leu phe pro leu phe arg 420  
glu glu val val leu val leu lys leu phe pro leu phe arg 440  
ala pro pro pro glu ala pro ala pro pro pro pro pro pro pro pro 460  
glu ala ala glu glu ala pro glu val val glu val val glu val 480  
arg val leu trp val arg arg arg arg arg arg arg arg arg arg arg 500  
gln asp glu ile gly thr gly ile arg pro glu glu pro leu ser 520

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FIG. 4D

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**FIG. 4E**

# REPLACEMENT SHEET

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Met his phe gly gly arg leu thr phe gln glu leu val val gly gln glu 20  
his val ser cys ala glu pro pro pro pro pro pro pro pro pro pro 40  
phe ser cys gln his pro arg glu arg glu arg glu arg glu arg glu 60  
gly cys ala glu pro pro pro pro pro pro pro pro pro pro 80  
arg glu pro pro pro pro pro pro pro pro pro pro 100  
leu asp glu pro pro pro pro pro pro pro pro pro pro 120  
glu pro pro pro pro pro pro pro pro pro pro 140  
thr ile lys leu pro pro pro pro pro pro pro pro pro 160  
phe lys leu ala arg glu arg glu arg glu arg glu arg glu 180  
leu leu ala arg glu arg glu arg glu arg glu arg glu 200  
gly thr leu ala arg glu arg glu arg glu arg glu arg glu 220  
gly leu ala arg glu arg glu arg glu arg glu arg glu 240  
leu glu pro phe arg glu arg glu arg glu arg glu arg glu 260  
ala pro arg glu arg glu arg glu arg glu arg glu arg glu 280  
ala arg glu arg glu arg glu arg glu arg glu arg glu 300  
ala arg glu arg glu arg glu arg glu arg glu arg glu 320  
glu ser ala arg glu arg glu arg glu arg glu arg glu 340  
trp arg ala arg glu arg glu arg glu arg glu arg glu 360  
pro glu val arg glu arg glu arg glu arg glu arg glu 380  
arg lys ala ser glu arg glu arg glu arg glu arg glu 400  
glu glu val val val val val val val val val val 420  
440  
454

FIG. 4F

# REPLACEMENT SHEET

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E.coli	MSYQVLARKWRPQTADVVGQEHVLTALANGLSGRIHHAYLFSGTRGVGKTSIARLLAK	ATP site	60
H.inf.	.....K.....II.....KDN.L.....F..		60
B.sub.	....A.Y.VF...R.E.....ITKT.Q.A.LQKKFS.....P.T....A.KIF..		60
C.cres.	DA.T.....Y.R..E.LI...AMVRT...AF.T..A..FMLT.V.....TT.....R		113
M.gen.	-MH..FYQ.Y..IN.KOTL...SIRKI.V.AINRDKLPNG.I..E.T...TF.KII..		59
T.th.	--VSA.Y.RF..L..QE.....KEP.LKAIRE..LAQ.....P.....TT.....M		58

	Zn <sup>++</sup> finger	*	*	*	*
E.coli	GLNCET----	GITATPCGVCDNCREIEQGRFVDLIEIDAASRTKVEDTRDLLDNVQYAPA	116		
H.inf.	....VH-----	V.....E.E.KA.....N.I.....E.....K.V	116		
B.sub.	AV....H-----	APVDE..NE.AA.KG.TN.SIS.V.....NNG.DEI..IR.K.KF..S	116		
C.cres.	A..Y..DTVK.PSVDLTTEGYH..S.IE..HM.VL.L.....DEM.E..G.R...V		173		
M.gen.	AI..LN-----	WDQIDV.NS..V.KS.NTNSAI.IV.....KNGIN.I.E.VE..FNH.F	115		
T.th.	AVG.QG-----	EDP.....PH.QAVQR.AHP.VVD.....NNS...V.E.RERIHL..L	112		

E.coli	RGRFKVYLIDEVHMLSRHSFNALLKTLLEPPPEHVKFLLATDPQKLPVTILSRCLQFHLK	176
H.inf.	V.....Y.....CI.I...E.H.I.L.I...QR.DF.	176
B.sub.	AVTY...I.....IGA.....TAA.....P.A..IF...EIR.V.....QR.D.R	176
C.cres.	EA.Y...I.....TTQ.WGG.....S.PY.L.IFT..EFN.I.L.....QS.FF.	233
M.gen.	TFKK...IL..A...KSA.....P..L.VF...E.ERM.P.....TQH.RFR	175
T.th.	SAPR..FIL..A.....P..L.VF...E.ERM.P.....TQH.RFR	172

FIG. 5A

# REPLACEMENT SHEET

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E.coli	ALDVEQIRHQLEHILNEEHIAHEPRALQLLARAEGSLRDALSLTDQAIASGDGQ--VST	234
H.inf.	...ET..SQH.A...TQ.N.PF.DP.VK..K..Q..I..S.....M..R.--.TN	234
B.sub.	RITSQA.VGRMNK.VDA.QLOV.EGS.EII.S.H.GM.....L....SFGDI--LKV	234
C.cres.	RVEPDVLVKHFDR.SAK.GARI.MD..A.I.....V..G..L....VQTERGQT.TS	293
M.gen.	KITSDL.LER.ND.AKK.K.KI.KD..IKI.DLSQ.....G...L..LAI.LIVKKL.LL	235
T.th.	R.TE.E.AFK.RR..EAVGRE.AEE..L...L.D.A....E..LERFLLLEGP---LTR	229
E.coli	QAVSAMLGTLDQDQALSLVEAMVEANGERVMAINEAAARGIEWEALLVEMLGLLHRIAM	294
H.inf.	NV..N...L...NYSVDILY.LHQG...LL.RTLQRV.DAAGD.DK..G.CAEK..Q..L	294
B.sub.	EDALLIT.AVSQLYIGK.AKSLHDK.VSDALETL..LLQQ.KDPK.IED.IFYFRDMLL	294
C.cres.	TV.RD...LA.RS.TIA.Y.HVMAGKTKDALEGFRALWGF.ADPVVMLDV.DHC.AS.V	353
M.gen.	MLKKHLISLIEMQNL.L.KQFYQ.I	260
T.th.	KE.ERA..SPPGTGVAEIAASLARGKTAEALG.ARRLYGE.YAPRS.VSGL.EVFREGLY	289

FIG. 5B

# REPLACEMENT SHEET

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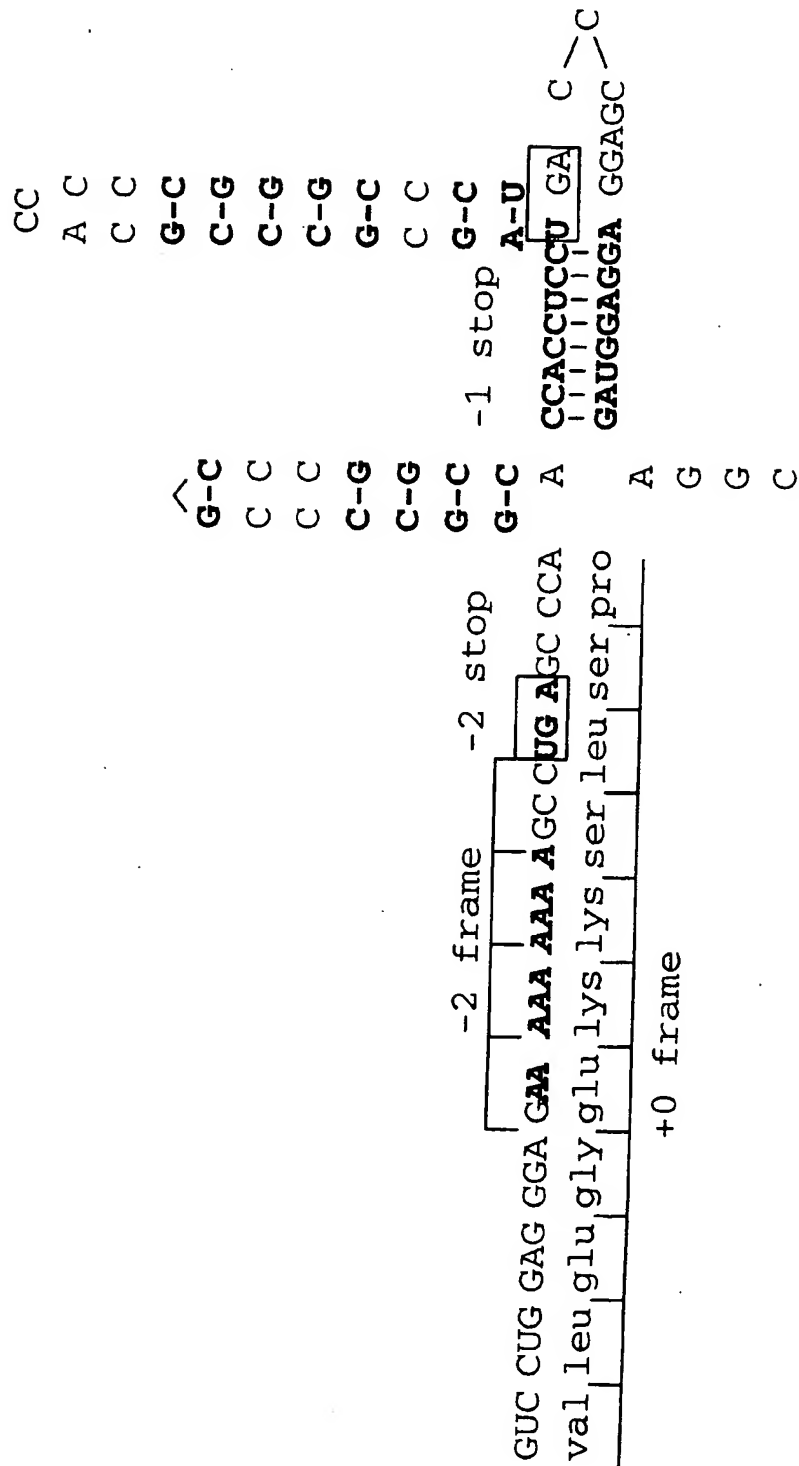
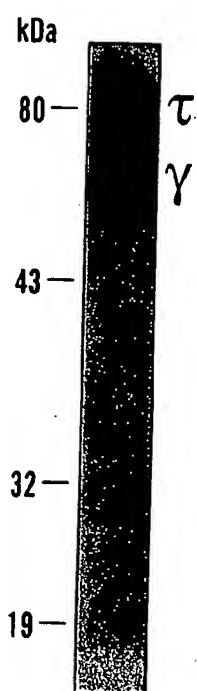


FIG. 6

REPLACEMENT  
SHEET

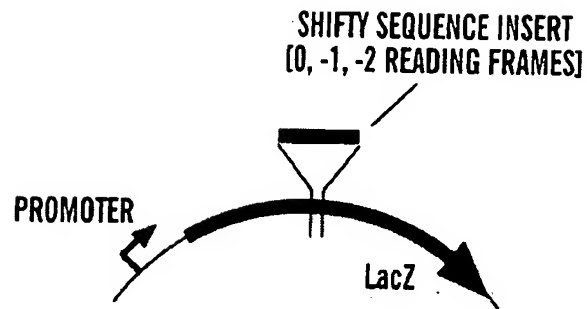
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**FIG. 7**

# REPLACEMENT SHEET

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**FIG. 8A**

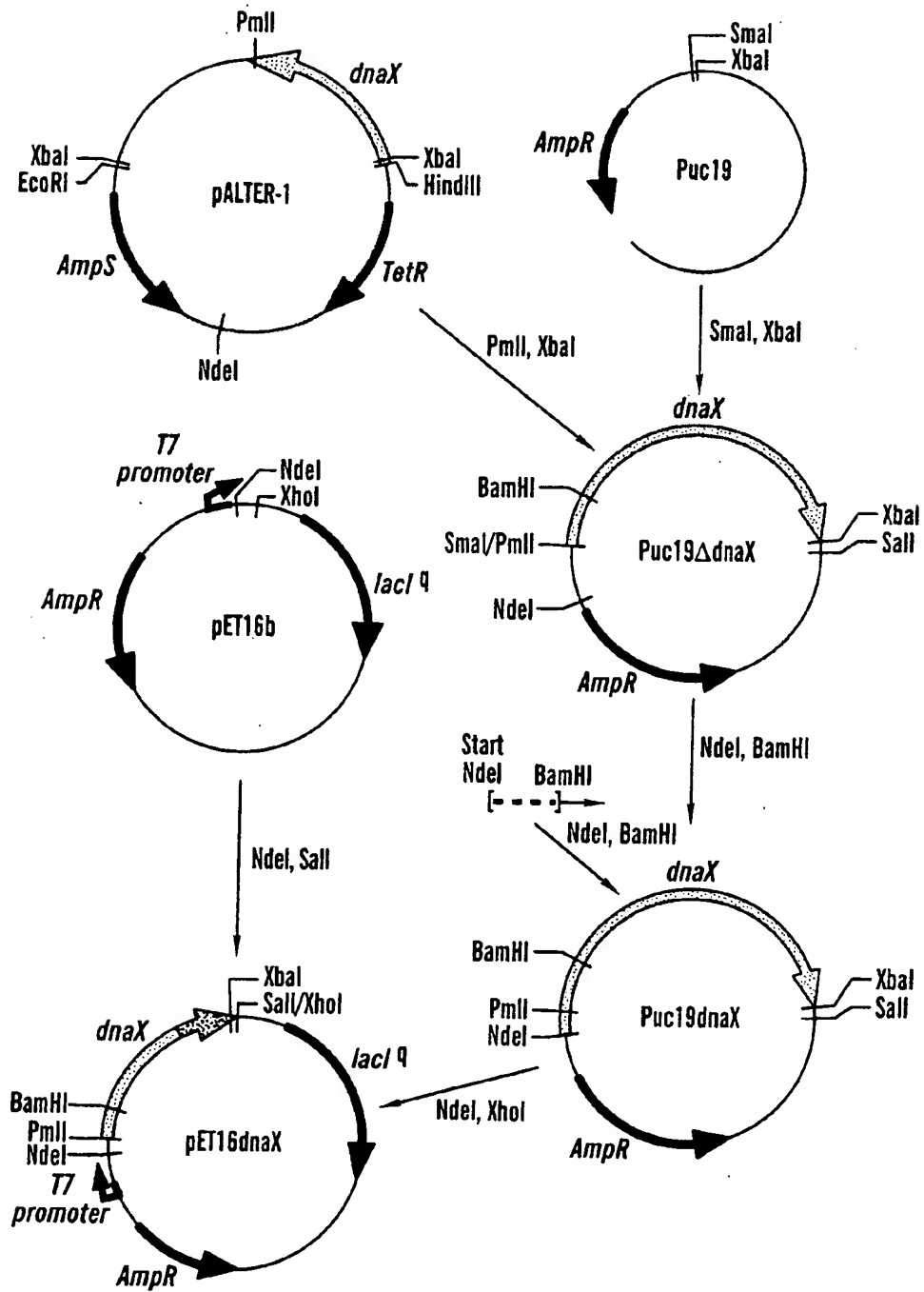
	READING FRAME	BLUE	WHITE
SHIFTY SEQUENCE	0	+	
	-1	+	
	-2	+	
MUTANT SEQUENCE	0	++	
	-1		+
	-2		+

**FIG. 8B**



# REPLACEMENT SHEET

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**FIG. 9**

# REPLACEMENT SHEET

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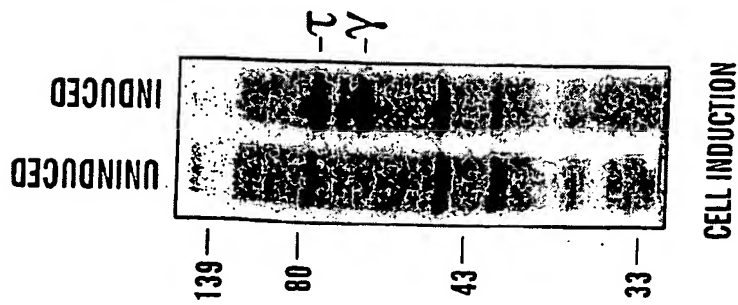


FIG. 10A

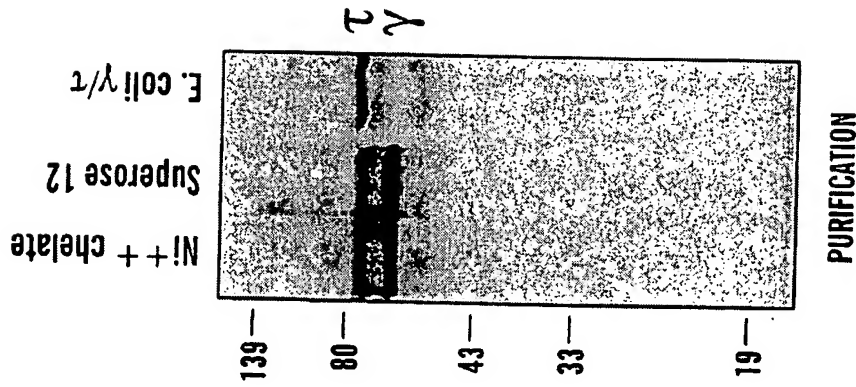


FIG. 10B

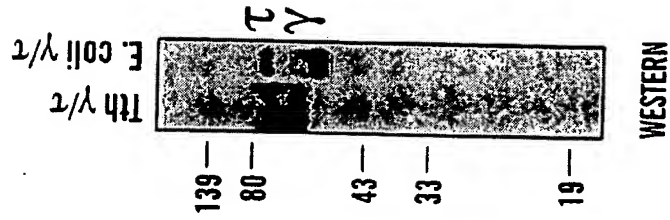
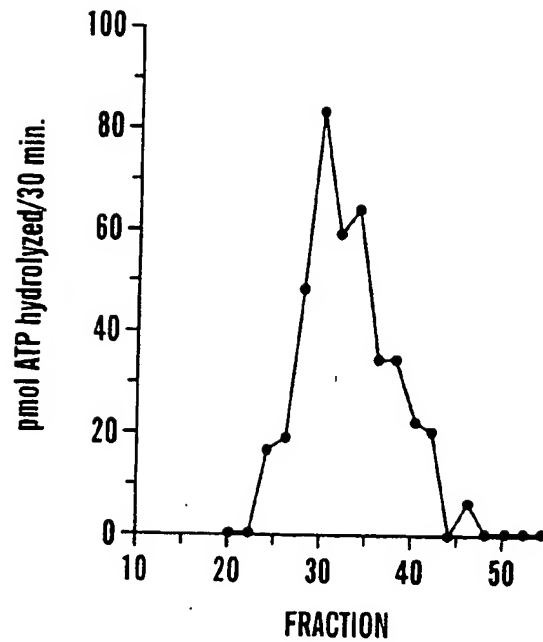


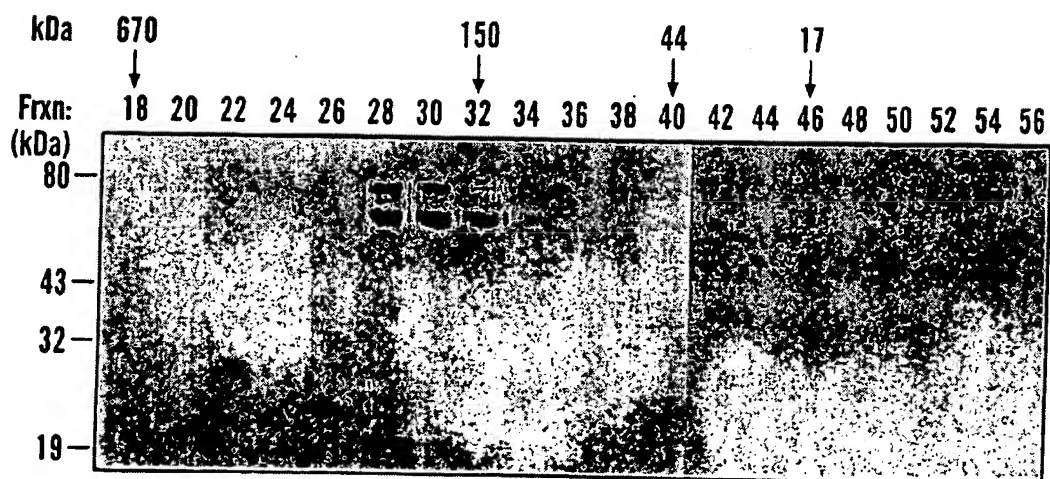
FIG. 10C

REPLACEMENT  
SHEET

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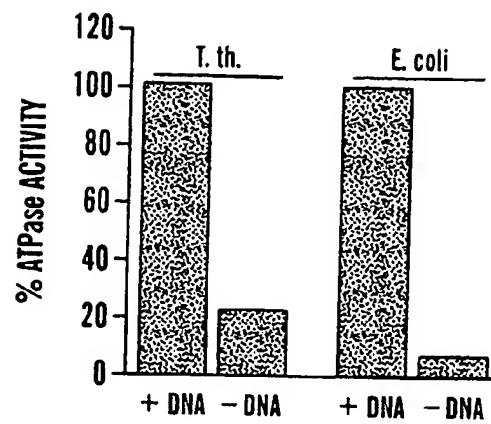
**FIG. 11A**



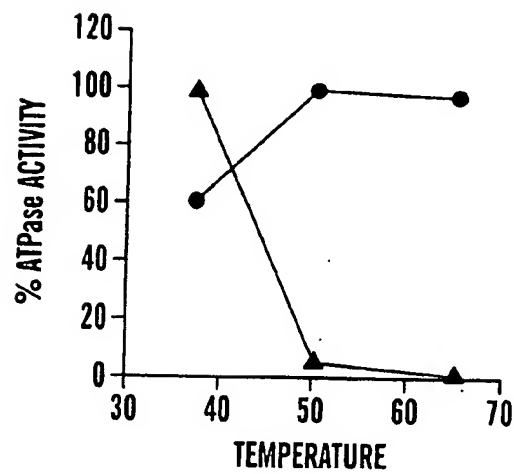
**FIG. 11B**

REPLACEMENT  
SHEET

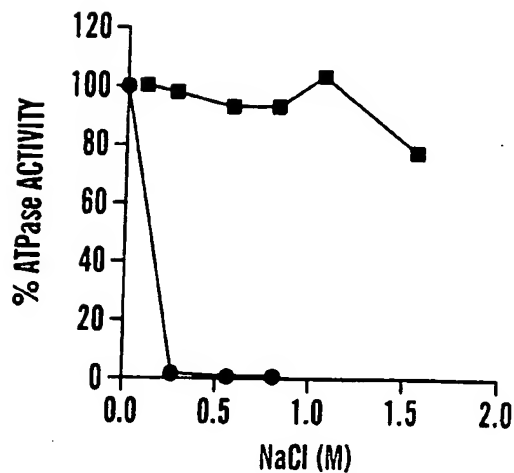
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**FIG. 12A**



**FIG. 12B**

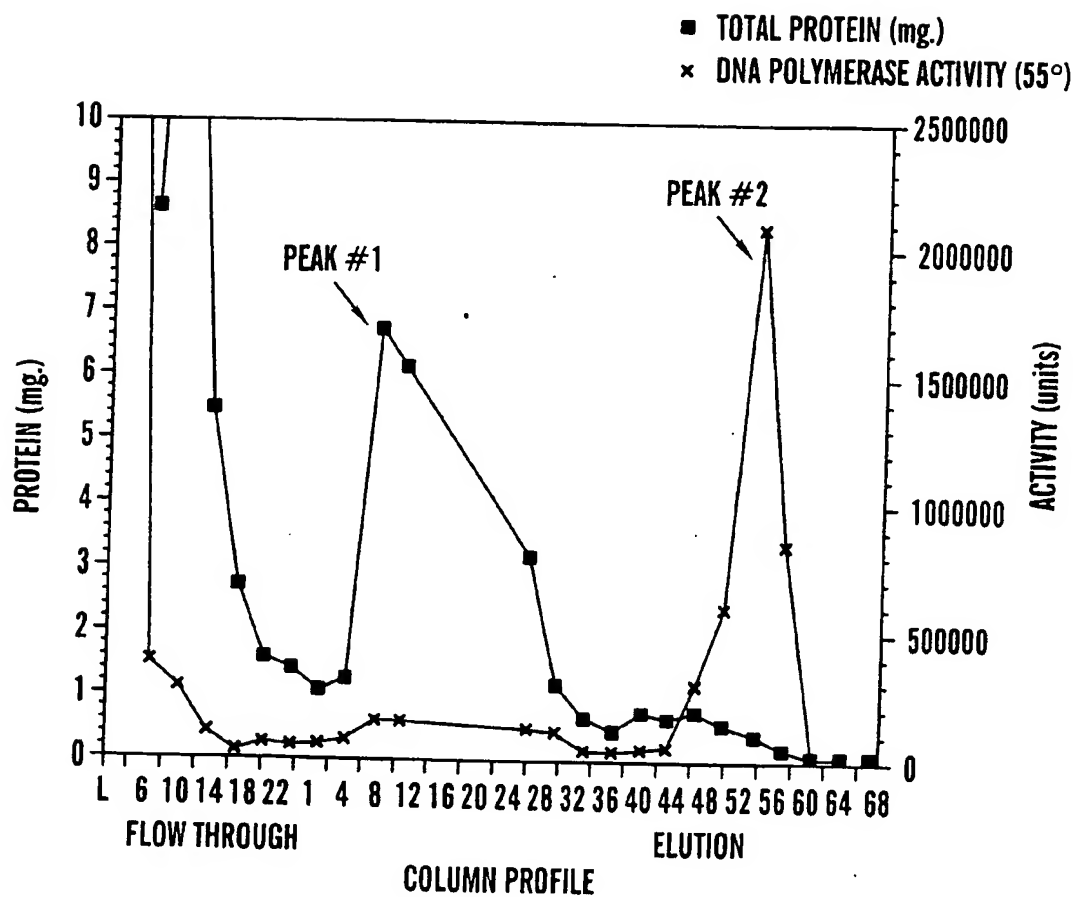


**FIG. 12C**

REPLACEMENT  
SHEET

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**FIG. 13A**



**FIG. 13B**

ATP AGAROSE STEP COLUMN

# REPLACEMENT SHEET

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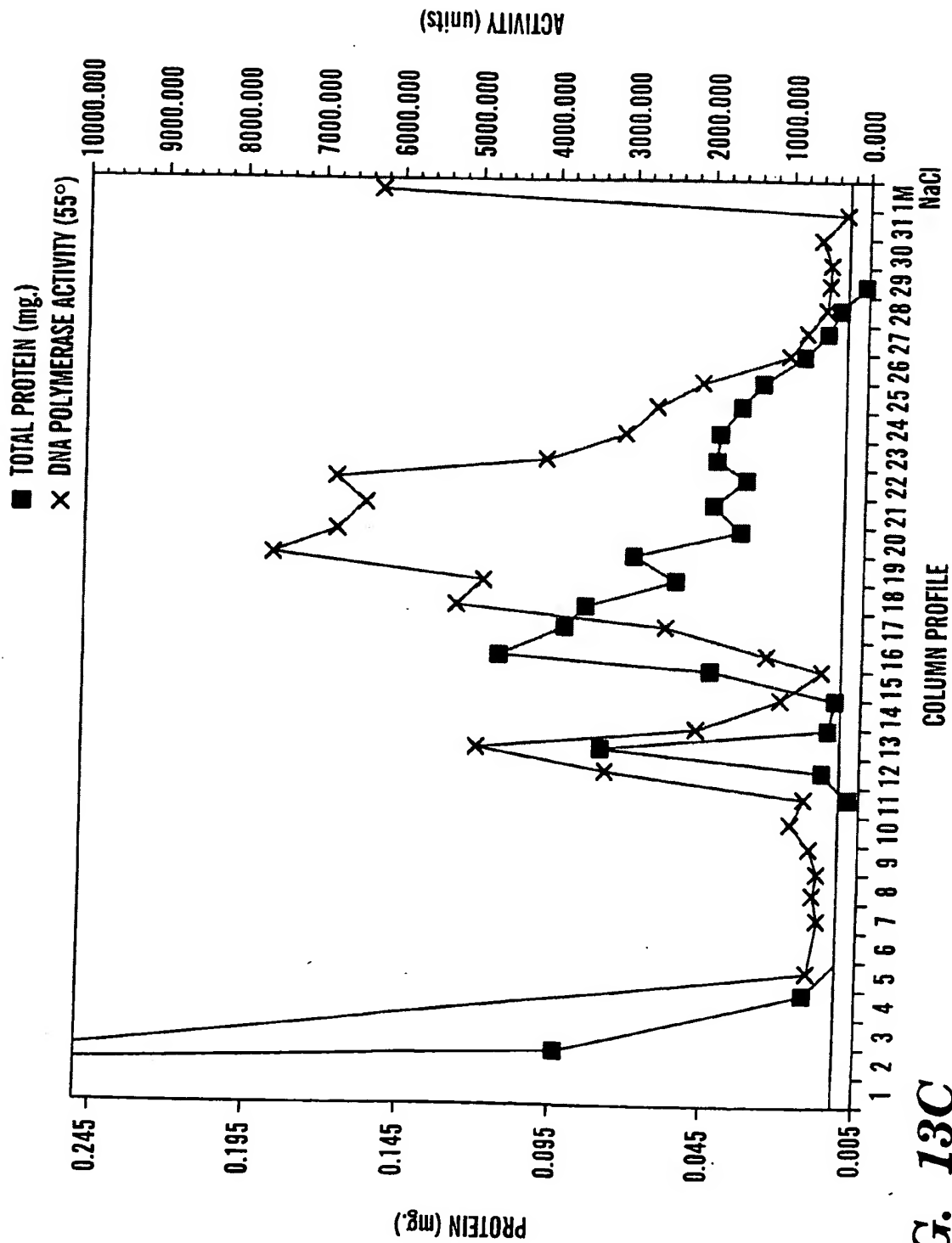
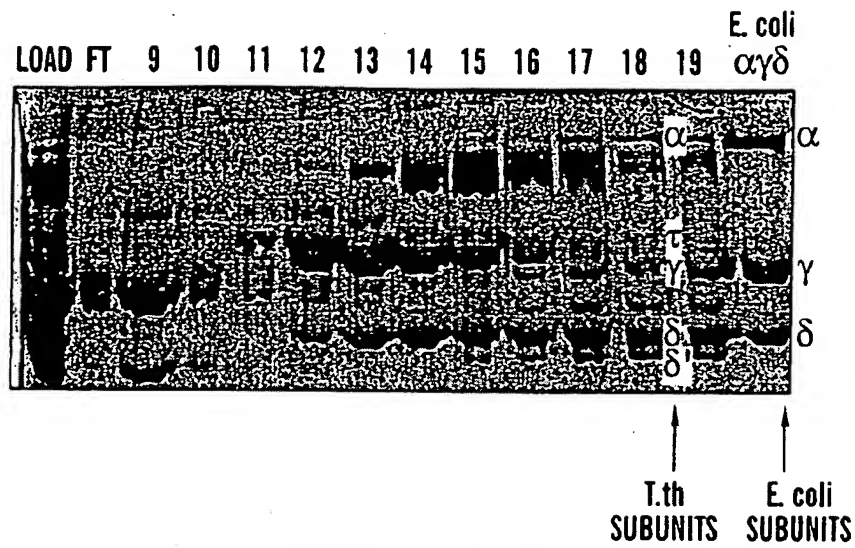


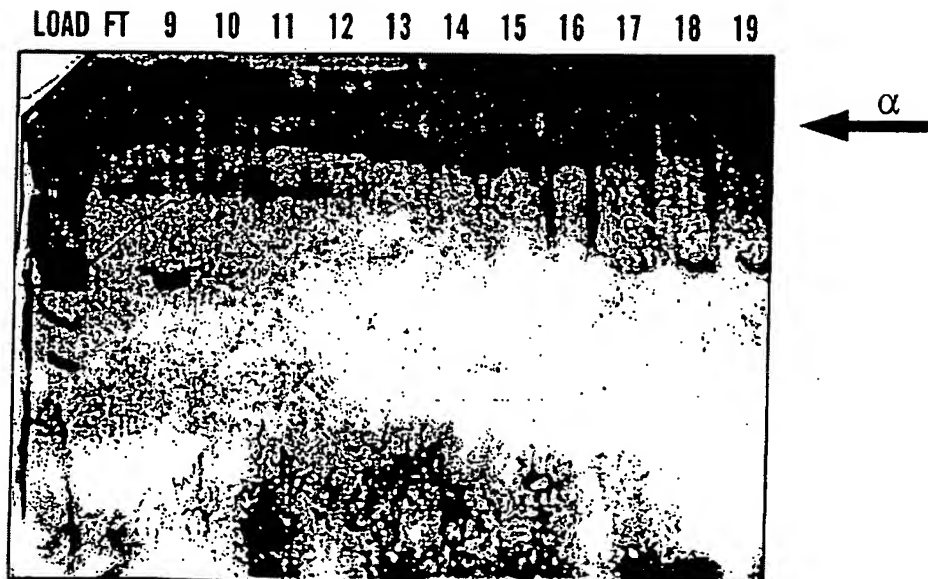
FIG. 13C

REPLACEMENT  
SHEET

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**FIG. 14A**



**FIG. 14B**

# REPLACEMENT SHEET

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Alignment of TTH1 with alphas subunits of other organisms.

E. coli	DRYFLELIRTGRPDEESYLHAAVELAEARGLPVV	197	(ID#72)
V. chol.	DHFYLELIRTGRADEESYLHFALDVAEQYDLPVV	197	(ID#73)
H. inf.	DHFYLALSRTPNEERYIQAAKLAEARCDLPLV	197	(ID#74)
R. prow.	DRFYFEIMRHDLPPEEQFIENSYIQIASELSIPIV	195	(ID#75)
H. pyl.	DDFYLEIMRHGILDQRFIDEQVIKMSLETGLKII	213	(ID#76)
S. sp.	DDYYLEIQDHGSVEDRLVNINLVKIAQELDIKIV	202	(ID#77)
M. tub.	DNYFLELMDHGLTIERRVRDGLLEIGRALNIPPL	220	(ID#78)
T. th.	FFIEIQNHGLSEQK		(ID#61)

**FIG. 15A**

Alignment of TTH2 with alphas subunits of other organisms.

E. coli	NKRRAKNGEPPLDIAAIPLDKKSFDMLQRSETTAVFQLESRGMKD	618	(ID#79)
V. chol.	NPRLKKAGKPPVRIEAIPLDDARSFRNLQDAKTTAVFQLESRGMKD	618	(ID#80)
H. inf.	NVRMVREGKPRVDIAAIPLDDPESFELLKRSETTAVFQLESRGMKD	618	(ID#81)
R. prow.	CKKLLKEQGIKIDFDDMTFFDKKTYQMLCKGKGVGFQFESIGMKD	624	(ID#82)
H. pyl.	LKI IKTQHKISVDFLSLDMDDPKVYKTIQSGDTVGFQIES - GMFQ	648	(ID#83)
S. sp.	QERKALQIRARTGSKKLPPDDVKTKHLLAEAGDLEGFQLESQGMKQ	643	(ID#84)
M. tub.	IDNVRANRGIDLDESVPPLDDKATYELLGRGDTLGVFQLDGGPMRD	646	(ID#85)
T. th.	RVELDYDALTLDD		(ID#60)

**FIG. 15B**



# REPLACEMENT SHEET

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ATGGGCCGGGAGCTCCGCTTCGCCCACCTCCACCAGCACA	
CCCAGTTCTCCCTCCTGGACGGGGCGGCGAAGCTTTCCGA	
CCTCCTCAAGTGGGTCAAGGAGACGACCCCCGAGGACCCC	120
GCCTTGCCCATGACCGACCACGGCAACCTCTTCGGGGCCG	
TGGAGTTCTACAAGAAGGCCACCGAAATGGGCATCAAGCC	
CATCCTGGGCTACGAGGCCTACGTGGCGGCGGAAAGCCGC	240
TTTGACCGCAAGCGGGGAAAGGGCCTAGACGGGGGCTACT	
TTACCTCACCTCCTCGCCAAGGACTTCACGGGGTACCA	
GAACCTGGTGCCTGGCGAGCCGGGCTTACCTGGAGGGG	360
TTTTACGAAAAGCCCCGGATTGACCGGGAGATCCTGCGCG	
AGCACGCCGAGGGCCTCATCGCCCTCTCGGGGTGCCTCGG	
GGCGGAGATCCCCCAGTTCATCCTCCAGGACCGTCTGGAC	480
CTGGCCGAGGCCCCGGCTCAACGAGTACCTCTCCATCTTCA	
AGGACCGCTTCTTCATCGAGATCCAGAACCACGGCCTCCC	
CGAGCAGAAAAAGGTCAACGAGGTCTCAAGGAGTTCGCC	600
CGAAAGTACGGCCTGGGGATGGTGGCCACCAACGACGGCC	
ATTACGTGAGGAAGGAGGACGCCCGCGCCACGAGGTCTT	
CCTCGCCATCCAGTCCAAGAGCACCTTGGACGACCCCGGG	720
CGCTGGCGCTTCCCCTGCGACGAGTTCTACGTGAAGACCC	
CCGAGGAGATGCGGGCCATGTTCCCCGAGGAGGAGTGGGG	
GGACGAGCCCTTTGACAACACCGTGGAGATCGCCCGCATG	840
TGCAACGTGGAGCTGCCCCATCGGGGACAAGATGGTCTACC	
GAATCCCCCGCTTCCCCCTCCCCGAGGGGCGGACCGAGGC	
CCAGTACCTCATGGAGCTCACCTTCAAGGGGCTCCTCCGC	960
CGCTACCCGGACCGGATCACCGAGGGCTTCTACCGGGAGG	
TCTTCCGCCTTTTGGGGAAGCTTCCCCCCCACGGGGACGG	
GGAGGCCTTGGCCGAGGCCTTGGCCCAGGTGGAGCGGGAG	1080
GCTTGGGAGAGGCTCATGAAGAGCCTCCCCCTTTGGCCG	
GGGTCAAGGAGTGGACGGCGGAGGCCATTTTCCACCGGGC	
CCTTTACGAGCTTTCCGTGATAGAGCGCATGGGGTTTCCC	1200
GGCTACTTCCTCATCGTCCAGGACTACATCAACTGGGCCC	
GGAGAAACGGCGTCTCCGTGGGGCCCCGGCAGGGGGAGCGC	
CGCCGGGAGCCTGGTGGCCTACGCCGTGGGGATCACC AAC	1320
ATTGACCCCTCCGCTTCGGCCTCCTCTTTGAGCGCTTCC	
TGAACCCGGAGAGGGTCTCCATGCCCGACATTGACACGGA	
CTTCTCCGACCGGGAGCGGGACCGGGTGATCCAGTACGTG	1440
CGGGAGCGCTACGGCGAGGACAAGGTGGCCCAGATCGGCA	
CCCTGGGAAGCCTCGCCTCCAAGGCCGCCCTCAAGGACGT	
GGCCCGGGTCTACGGCATCCCCACAAGAAGGCGGAGGAA	1560
TTGGCCAAGCTCATCCCGGTGCAGTTCGGGAAGCCCAAGC	
CCCTGCAGGAGGCCATCCAGGTGGTGC CGGAGCTTAGGGC	
GGAGATGGAGAAGGACCCCAAGGTGCGGGAGGTCTTCGAG	1680
GTGGCCATGCGCCTGGAGGGCCTGAACCGCCACGCCTCCG	
TCCACGCCCGCGGGGTGGTGATCGCCGCCGAGCCCCCTCAC	
GGACCTCGTCCCCCTCATGCGCGACCAGGAAGGGCGGCCC	1800
GTCACCCAGTACGACATGGGGGCGGTGGAGGCCTTGGGGC	
TTTTGAAGATGGACTTTTTTGGGCCTCCGCACCCTCACCTT	

**FIG. 16A**

# REPLACEMENT SHEET

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CCTGGACGAGGTCAAGCGCATCGTCAAGGCGTCCCAGGGG	1920
GTGGAGCTGGACTACGATGCCCTCCCCCTGGACGACCCCA	
AGACCTTCGCCCTCCTCTCCCGGGGGGAGACCAAGGGGGT	
CTTCCAGCTGGAGTCGGGGGGGATGACCGCCACGCTCCGC	2040
GGCCTCAAGCCGCGGCGCTTTGAGGACCTGATCGCCATCC	
TCTCCCTCTACCGCCCCGGGCCCATGGAGCACATCCCCAC	
CTACATCCGCCGCCACCACGGGCTGGAGCCCGTGAGCTAC	2160
AGCGAGTTTCCCCACGCCGAGAAGTACCTAAAGCCCATCC	
TGGACGAGACCTACGGCATCCCCGTCTACCAGGAGCAGAT	
CATGCAGATCGCCTCGGCCGTGGCGGGGTACTCCCTGGGC	2280
GAGGCGGACCTCCTGCGGCGGTCCATGGGCAAGAAGAAGG	
TGGAGGAGATGAAGTCCCACCGGGAGCGCTTCGTCCAGGG	
GGCCAAGGAAAGGGGCGTGCCCCGAGGAGGCCAACCGC	2400
CTCTTTGACATGCTGGAGGCCTTCGCCAACTACGGCTTCA	
ACAAATCCCACGCTGCCGCCTACAGCCTCCTCTCCTACCA	
GACCGCCTACGTGAAGGCCCACTACCCCGTGGAGTTCATG	2520
GCCGCCCTCCTCTCCGTGGAGCGGCACGACTCCGACAAGG	
TGGCCGAGTACATCCGCGACGCCCGGGCCATGGGCATAGA	
GGTCCTTCCCCCGGACGTCAACCGCTCCGGGTTTGACTTC	2640
CTGGTCCAGGGCCGGCAGATCCTTTTCGGCCTCTCCGCGG	
TGAAGAACGTGGGCGAGGCGGCGGGAGGCCATTCTCCG	
GGAGCGGGAGCGGGGCGGCCCTACCGGAGCCTCGGCGAC	2760
TTCTCAAGCGGCTGGACGAGAAGGTGCTCAACAAGCGGA	
CCCTGGAGTCCCTCATCAAGGCGGGCGCCCTGGACGGCTT	
CGGGGAAAGGGCGCGGCTCCTCGCCTCCCTGGAAGGGCTC	2880
CTCAAGTGGGCGGCCGAGAACC GGGAAGGCCCGCTCGG	
GCATGATGGGCCTCTTCAGCGAAGTGGAGGAGCCGCCTTT	
GGCCGAGGCCGCCCCCTGGACGAGATCACCCGGCTCCGC	3000
TACGAGAAGGAGGCCCTGGGGATCTACGTCTCCGGCCACC	
CCATCTTGCGGTACCCCGGGCTCCGGGAGACGGCCACCTG	
CACCCTGGAGGAGCTTCCCCACCTGCCCCGGGACCTGCCG	3120
CCCCGGTCTAGGGTCCTCCTTGCCGGGATGGTGGAGGAGG	
TGGTGCGCAAGCCCACAAAGAGCGGCGGGATGATGGCCCG	
CTTCGTCTCTCCGACGAGACGGGGGCGCTTGAGGCGGTG	3240
GCATTGCGCCGGGCCTACGACCAGGTCTCCCCGAGGCTCA	
AGGAGGACACCCCCGTGCTCGTCCTCGCCGAGGTGGAGCG	
GGAGGAGGGGGGCGTGCGGGTGCTGGCCCAGGCCGTTTGG	3360
ACCTACGAGGAGCTGGAGCAGGTCCCCCGGGCCCTCGAGG	
TGGAGGTGGAGGCCTCCCTCCTGGACGACCGGGGGGTGGC	
CCACCTGAAAAGCCTCCTGGACGAGCACGCGGGGACCCTC	3480
CCCCTGTACGTCCGGGTCCAGGGCGCCTTCGGCGAGGCC	
TCCTCGCCCTGAGGGAGGTGCGGGTGGGGGAGGAGGCTGT	
AGGCGGCCGCGTGTTCCGGGCCTACCTCCTGCCCGACCG	3600
GGAGGTCCTTCTCCAGGGCGGCCAGGCGGGGAGGCCCAG	
GAGGCGGTGCCCTTCTAGGGGGTGGGCCGTGAGACCTAGC	
GCCATCGTTCTCGCCGGGGGCAAGGAGGCCTGGGCCCGAC	3720
CCCTTTTGG	

**FIG. 16B**

# REPLACEMENT SHEET

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MGRELRFAPHLHQHTQFSLLDGAPKLSDLLKWVEETTPEDP	
ALAMTDHGNLFGAVEFYKKATEMGIKPI LGYEAYVAAESR	
FDRKRKGGLDGGYFHLTLLAKDFTGYQNLVRLASRAYLEG	120
FYEKPRIDREILREHAEGLI ALSGCLGAEIPQFILQDRLD	
LAEARLNEYLSIFKDRFFIEIQNHGLPEQKKVNEVLKEFA	
RKYGLGMVATNDGHYVRKEDARAHEVLLAIQSKSTLDDPG	240
ALALPCEEFYVKTPEEMRAMFPEEEVGGRSPLTTPWRSPPH	
VQRGAAIGTRWSTRI PRFPLPEGRTEAQYLMELTFKGLLR	
RYPDRITEGFIYREVFRLSGKLP PHGDGEALAEALAQVERE	360
AWERLMKSLPPLAGVKEWTAEAI FHRALYELSAIERMGFP	
GLLPHRPGHLHQLGPEKGVSVGPGRGGAAGSLVAYAVGITN	
IDPLRFGLL FERFLNPERVSMPDIDTDFSDRERDRVIQYV	480
RERYGEDKVAQIGTLGSLASKAALKEVARVYGI PRKKAEE	
LAKLIPVQFGKPKPLQEA IQVVP ELRAEMEKDPKVREVL	
VAMRLEGLNRHASVHAGRGGVFSEPLTDLVPLCATRKGGP	600
YTQYDMGAVEALGLLKMDFLGLRTL TFLDEVKRIVKASQG	
VELDYDALPLDDPKTFALLSRGETKGVFQLESGGMTATLR	
GLKPRRFEDLIAILSLYRPGPMEHIPTYIRRHHGLEPVSY	720
SEFPHAKEYLKPILDETYGIPVYQEQIMQIASAVAGYSLG	
EADLLRRSMGKKKVEEMKSHRERFVQGAKEGVP EEEANR	
LFDMLEAFANYGFNKSHAAAYSLLSYQTAYVKAHYPVEFM	840
AALLSVERHDSKVAEYIRDARAMGIEVLPPDVNRSGFDF	
LVQGRQILFGLSAVKNVGEAAAEAILRERERGGPYRSLGD	
FLKRLDEKVLNKR TLES LIKAGALDGFGERARLLASLEGL	960
LKWAANREKARSGMMGLFSEVEEPPLAEAAPLDEITRLR	
YEKEALGIYVSGHPILRYPGLRETATCTLEELPHLARDLP	
PRSRVLLAGMVEEVVRKPTKSGGMMARFVLSDETGALEAV	1080
AFGRAYDQVSPRLKEDTPVLVLAEVEREEGGVVRVLAQAVW	
TYQELEQVPRALEVEVEASLPDDRGV AHLKSLLDEHAGTL	
PLYVRVQGA FGEALLALREVRV GEEALGALEAAGFPAYLL	1200
PNREVSPRLTGSGGPRGRALSTGLALKTYPIALPGGNEAL	
ARPLL	

**FIG. 16C**

# REPLACEMENT SHEET

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T.th.	Start1	Start2	3'-Exo I
D.rad.	VERVVRTLLDGRFLLEEGVGLWEWRYPPFLEGEAVVLDLETTGTLAG		LDEVIEVGLLRLEGG---RRLPF
Bac.sub.	HGIKMIYMEANLVDDGVPIAYNAAHRLLEEETVVVFDVETTGLSAV		PWPQDVVVFDDLETTGFSPA-----SAAIVEIGAVRIVGGQIDETLKF
H.inf.			MINPNRQIVLDLTETTGMMNQLGAHYEGHCHIEIGAVELINRR-YTGNNX
E.c.			MSTAITRQIVLDLTETTGMMNQIGAHSEGHKIEIGAVEVVNRR-LTGNNF
H.pyl.	NLEYLKACGLNFIETSENLTILKNLKTPLKDEVFSFIDLETTGSCPI		-----KHEILEIGAVQVKGGE--IINRF
T.th.			3'-Exo II
D.rad.	QSLVR-PLPP---AEARSWNLT--- <td></td> <td></td>		
Bac.sub.	ETLVR-PTRPDGSMLSIPWQAQRVHGISDEMVRRAPAXKDVLPDFDFVDGSAVVAHNVSFDDGGFM-RAGAERLG		
H.inf.	EAFAN-PHRP---LSATIIELT--- <td></td> <td></td>		
E.c.	HIYIK-PDRP---XDPDAIKVH---GITDEMLADKPEFKEVAQDFLDYINGAELLIHNAFPFVGVGM-DYEFKRLN		
H.pyl.	HVYLK-DRLV---DPEAFGVH---GIAVDFLLDKPTFAEVAVEFMDYIRGAELVIHNAAFDVGFM-DYEFSLK		
	ETLVKVKSPV-----DYIAELT--- <td></td> <td></td>		
T.th.			3'-Exo IIIC
D.rad.	-----YRLENPVVDSLRRLARRGLPGLRRYGLDALSEVLELPRRT---CHRALEDVERTLAVVHEVYVYMLT-----SG		
Bac.sub.	-----LSWAPERELCTMQLSRRAPPRERTHNLTVLAERLGLFAPGGRHRSYGDVQVTAQAYLRLLELGL-----ER		
H.inf.	E---VEKAKNPVIDTLELGRFLYPEFKNHRLNTLCKKFDIELTQ---HERRAITYDTEATAYLLKMLKDA-----EK		
E.c.	-LNVKTDDICLVTDTLQMARQMPGKRN-NLDALCDRLGIDNSKRTLHGALLDAAEILADVLLMTGGQTNLFDEEE		
H.pyl.	RDIAKTNTFCVKVTDLSLAVARKMFPKGKRN-SLDALCARYEIDNSKRTLHGALLDAAQILAENVYLAAMTGGQTSMAFAME		
	-----CPLLNLKCLTDLKRAILSMRY-SLSFLKELLGFGIEV---SHRAYADALASYKLFEICLLNLP---SYIKT		

FIG. 17

REPLACEMENT  
SHEET

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ATGGTGGAGCGGGTGGTGCGGACCCTTCTGGACGGGAGGT 40  
TCCTCCTGGAGGAGGGGGTGGGGCTTTGGGAGTGGCGCTA  
CCCCTTTCCCCTGGAGGGGGGAGGCGGTGGTGGTCCTGGAC 120  
CTGGAGACCACGGGGCTTGCCGGCCTGGACGAGGTGATTG  
AGGTGGGCCTCCTCCGCCTGGAGGGGGGGAGGCGCCTCCC 200  
CTTCCAGAGCCTCGTCCGGCCCCCTCCCGCCCCGCCGAAGCC  
CGTTCGTGGAACCTCACCGGCATCCCCCGGGAGGCCCTGG 280  
AGGAGGCCCCCTCCCTGGAGGAGGTTCTGGAGAAGGCCTA  
CCCCCTCCGCGGCGACGCCACCTTGGTGATCCACAACGCC 360  
GCCTTTGACCTGGGCTTCCTCCGCCCCGGCCTTGGAGGGCC  
TGGGCTACCGCCTGGAAAACCCCGTGGTGGACTCCCTGCG 440  
CTTGGCCAGACGGGGCTTACCAGGCCTTAGGCGCTACGGC  
CTGGACGCCCTCTCCGAGGTCTTGGAGCTTCCCCGAAGGA 520  
CCTGCCACCGGGCCCTCGAGGACGTGGAGCGCACCCCTCGC  
CGTGGTGACAGAGGTATACTATATGCTTACGTCCGGCCGT 600  
CCCCGCACGCTTTGGGAACCTCGGGAGGTAG

**FIG. 18A**

MVERVVRTLLDGRFLLEEGVGLWEWRYPFPLEGEAVVVD 40  
LETTGLAGLDEVIEVGLLRLEGGRRLPFQSLVRPLPPAEA  
RSWNLTGIPREALEEAPSLEEVLEKAYPLRGDATALVIHNA 120  
AFDLGFLRPALEGLGYRLNPVVDLSRLARRGLPGLRRYG  
LDALSEVLELPRRTCHRALEDVERTLAVVHEVYYMLTSGR 200  
PRTLWELGRZ

**FIG. 18B**

REPLACEMENT  
SHEET

## Alignment of dnaA genes.

P.mar.	MLEASWEK	VQSSL--KQNLK--	-----PSYE	TWIRTEFSG--FKN	GELTLIAPNSFSSAW	LKNYSQTIQETAE-	65
Syn.sp.	MVSCENLWQQ	ALAIL--ATQLTK--	-----PAFD	TWIKASVLIS--LGD	GVATIQVENGFLVNH	LQKSYGPLIMEVLT-	67
B.sut.	MENILDWNQ	ALAQI--EKKLSK--	-----PSFE	TWTKSTKAHS--LQG	DTLITITAPNEFARDW	LESRYLHLIADTIY-	67
M.tub.	MTDDPGSGFTTWNA	VSELNGDPKVDDGP	SSDANLSAPLTQQOR	AWNLVQPLT--IVE	GFALLSVPSFVQNE	IERHLRAPITDALS-	87
T.th.	MSHEAVWQH	VLEHI--RRSITE--	-----VEFH	TWFERIRPLG--IRD	GVLELAVPTSFDLDW	IRRHVAGLIQEGPR-	66
E.coli	MSLSLWQQ	CLARL--QDELPA--	-----TEFS	MWIRPLQAE--LSD	NTLALYAPNRFVLDW	VRDKYLNNINGLLT-	64
T.mar.	MKER	ILQEI--KTRVNR--	-----KSWE	LWFSFDVKS--IEG	NKVVFSVGNLFKEW	LEKKYYSVLKAVK-	61
H.pyl.	MDTNNNIEKE	ILALVKQNPKVSL--	-----IEYE	NYFSQLKYNPNASKS	DIAFFYAPNQVLCTT	ITAKYGALLKEILSQ	72
P.mar.	EIFG---	EPVTVHVK	VKANAESSDEHYSSA	P-----	ITPPLASPGSV	DSSGSSRLRSK----	130
Syn.sp.	DLTG---	QEITVKLI	TDGLEPHS---	LIGQ	SSLPMETTP----	-----	115
B.sut.	ELTG---	EELSIFV	IPQNQDVEDFMPKPQ	VKKAVKEDTSDFPQN	-----	-----MLNPKYTFDT	119
M.tub.	RRLGH-QIQGVRIA	PPATDEADDTTVPPS	ENPATSPDITTDND	EIDDSAAARGDNQHS	WPSYFTERPHNTDSA	TAGVTSLNRRYTFDT	176
T.th.	LLGAQ-APRFELRVV	PGVVQEDIFQPPPS	PPAQAP-----	-----	-----	-----EDTFKT	108
E.coli	SFCGADAPQLRFEVG	TKPVTQTPQAAVTSN	VAAPAQVAQTQPORA	APSTRSGWDNV PAPA	EP-----	-----TYRSNVNVKHTFDN	140
T.mar.	VVLG---	NDATFEIT	YEAFEPHSSYSEPLV	KKRAVLITP-----	-----	-----LNPDYTFEN	106
H.pyl.	NKVG-MHLAHSVDVR	IEVAPKIQINAQSN	NYKAIKTS-----	-----	-----	-----VKDSYTFEN	118
P.mar.	FVVGPNRMAHAAAM	AVAESPGREFNPLFI	CGGVGLGKTHLMQAI	GHYRLEIDPGAKVSY	VSTETFTNDLIL--A	IRQDRMQAFRDRYR-	217
Syn.sp.	FVVGPTNRMAHAASL	AVAESPGREFNPLFL	CGGVGLGKTHLMQAI	AHYRLEMYPNAKVY	VSTERFTNDLIT--A	IRQDNMEDFRSYR-	202
B.sut.	FVIGSGNRFAHAASL	AVAEAPAKAYNPLFI	YGGVGLGKTHLMHAI	GHYVIDHNPSAKVY	LSSEKFTNEFIN--S	IRDNKAVDPRNRYR-	206
M.tub.	FVIGASNRFAHAAAL	AIAEAPARAYNPLFI	WGESGLGKTHLLHAA	GNVYQRLFPGRMVKY	VSTEEFTNDFIN--S	LRDDRKVAFKRSYR-	263
T.th.	SWWGPTTPWPHGGAV	AVAESPGRAYNPLFI	YGGRLGKTYLMLHAV	GPLRAKRFPHMRLEY	VSTETFTNELINRPS	AR-DRMTFEFRERYR-	196
E.coli	FVEGKSNQLARAAAR	QVADNPGGAYNPLFL	YGGTGLGKTHLLHAV	GNGIMARKPNKAVVY	MHSERFVQDMVK--A	LQNNAIIEEFKRYR-	227
T.mar.	FVVGPGNSFAYHAAL	EVAKHPGR-YNPLFI	YGGVGLGKTHLLQSI	GNVYVQNEPDLRVMY	ITSEKFLNDLVD--S	MKEGKLNFEFREKYRK	193
H.pyl.	FVVGSCNNTVVEIAK	KVAQSDTPPPYNPVLV	YGGTGLGKTHILNAI	GNHALEK--HKKVVL	VTSEDFLTDFLK--H	LDNKTMTDSFKAKYR-	203

FIG. 19A

# REPLACEMENT SHEET

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P.mar.	AADLILVDDIOFIEG	KEYTQEEFFHTFNAL	HDAGSQIVLASDRPP	SOIPRLQERLMSRFS	MGLIADVQAPDLETR	MAILQKKAHERVGL	307
Syn.sp.	SADFLLLIDDIQFIK	KEYTQEEFFHTFNAL	HEAGQVWVASDRAP	ORIPGLQDRLLSRFS	MGLIADIQVPDLETR	MAILQKKAHYDRIRL	292
B.sut.	NVDVLLVDDIOFIEG	KEGTQEEFFHTFNAL	HEESKQIVISSDRPP	KEIPTLEDRLSRFE	WGLITDITPPDLETR	MAILRKKAKAEGDLI	296
M.tub.	DVDVLLVDDIOFIEG	KEGTQEEFFHTFNAL	HNANKQIVISSDRPP	KQLATLEDRLRTRFE	WGLITDVQPPDLETR	MAILRKKAKAEMERLAV	353
T.th.	SVDLLVDDIOFIEG	KEGTQEEFFHTFNAL	YEAHKQIILLSSDRPP	KDILTLEARLSRFE	WGLITDNPAPDLETR	MAILKMNAS-SGPED	285
E.coli	SVDALLIDDIQFFAN	KERSQEEFFHTFNAL	LEGNQOIILLSSDRPP	KEINGVEDRLKSRFG	WGLITVAIEPPELETR	MAILKMKADENDIRL	317
T.mar.	KVDILLIDDVQFLIG	KTGVQTELFHTFNEL	HDSGKQIVICSDREP	QKLSEFQDRLLSRFQ	MGLVAKLEPPDEETR	KSIARKMLEIEHGEL	283
H.pyl.	HCDFLLDDAQFLQG	KPKLEEEFFHTFNEL	HANSKQIVLISDRSP	KNIAGLEDRLKSRFE	WGITAKVMPDLETK	LSIVKQKQCLNQITL	293

P.mar.	PRDLIOFIAGFTSN	IRELEGALTRAIATA	SITGLPMTVDSIAPM	LD----	PNGQGVVET	PKQVLDKVAEVPKVT	PDEMRSASRRR-PVS	392
Syn.sp.	PKEVIEYIAHYTSN	IRELEGALIRAIAYT	SLSNVAMTVENIAPV	LN----	PPVEKVA	PETITITVAQHYQLK	VEELLSNSRRR-EVS	377
B.sut.	PNEVMLYIANQIDSN	IRELEGALIRVWAYS	SLINKDINADLAEEA	LKDII--	PSSKPKVIT	IKETIQRVVQGFNIK	LEDFAKAKRTK-SVA	384
M.tub.	PDDVLELIAASSIERN	IRELEGALIRVTAF	SLNKTPIDKALAEIV	LRDLI--	ADANTMQIS	AATIMAATAEYFDTT	VEELRGPKTR-ALA	441
T.th.	PEDALEYIARQVTSN	IREWEGALMRASPPA	SLNGVELTRAVAACA	LRHLR-P--	RELEAD	PLEIIRKAAGPVRPE	TPGGAHGERRRKEVV	372
E.coli	PGEVAFPIAKRLRSN	VRELEGALNRVIANA	NFTGRAITIDFVREA	LRDLL-A-	LQEKLV	IDNIQKTVAEYVYKIK	VADLLSKRRSR-SVA	404
T.mar.	PEEVILNFVAENVDDN	LRRLRGAIKLLVYK	ETTGKEVDLKEAILL	LKDFIKPNRVKAMDP		IDELIEIVAKVTGVP	REELLSNSRNV-KAL	372
H.pyl.	PEEVMEYIAQHISDN	IRQMEGAIKISVNA	NLMNASIDLNLAKTV	LEDL--	QKDHAE	LENILLAVAQSLNLK	SSEIKVSSRQK-NVA	380

P.mar.	QARQVGMVLMRQGTN	LSLPRIGDTFGGKDH	TTVMAIEQVEKKLS	S-----	DPQIA	SQVQKIRDLLQIDSR	RKR----	461
Syn.sp.	LARQVGMVLMRQHTD	LSLPRIGEAFGGKDH	TTVMYSCDKITQLQQ	K-----	DWETS	QTLTSLSHRINIAGQ	APES----	447
B.sut.	FPRQIAMVLSREMTD	SSLPKIGEEFGGRDH	TTVIHAHEKISKLLA	D-----	DEQLQ	QHVKEIKEQLK----		446
M.tub.	QSRQIAMVLCRELTD	LSLPKIGQAFG-RDH	TTVMAAQKILSEMA	E-----	RREVF	DHVKELTTRIRQRSK	R-----	507
T.th.	LPRQIAMVYLRELTP	ASLPEIGQFLGGRDH	TTVRYAIQKVQELAG	KP-----	DREVQ	GLLRTLREACTDPVD	NLWITCG	446
E.coli	RPRQAMALAKELTN	HSLPEIGDAFGGRDH	TTVLHACRKIEQLRE	E-----	SHDIK	EDFSNLIRTLSS----		467
T.mar.	TARRIGMYVAKNYLK	SSLRTIAEKN-RSH	PVVVDSVKKVKDSLL	KG-----	NKQLK	ALIDEVIGEISRRAL	SG-----	440
H.pyl.	LARKLVVYFARLYTP	NPTLSLAQFLDLKDH	SSISKMYSGVKMME	EESKSPFVLSLREEIK		NRLNELNDKKTAFNS	SE-----	457

FIG. 19B

# REPLACEMENT SHEET

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GTGTCGCACGAGGCCGTCTGGCAACACGTTCTGGAGCACA  
TCCGCCGCAGCATCACCGAGGTGGAGTCCACACCTGGTT  
TGAAAGGATCCGCCCCCTTGGGGATCCGGGACGGGGTGCTG 120  
GAGCTCGCCGTGCCACCTCCTTTGCCCTGGACTGGATCC  
GGCGCCACTACGCCGGCCTCATCCAGGAGGGCCCTCGGCT  
CCTCGGGGGCCAGGCGCCCCGGTTTGAGCTCCGGGTGGTG 240  
CCCGGGGTCTAGTCCAGGAGGACATCTTCCAGCCCCCGC  
CGAGCCCCCGGCCCAAGCTCAACCCGAAGATACTTTAA  
AACTTCGTGGTGGGGCCCAACAATCCATGGCCCCACGGC 360  
GGCGCCGTGGCCGTGGCCGAGTCCCCCGGCCGGGCCTACA  
ACCCCTCTTCATCTACGGGGGCCGTGGCCTGGGAAAGAC  
CTACCTGATGCACGCCGTGGGCCACTCCGTGCGAAGCGC 480  
TTCCCCCACATGAGATTAGAGTACGTTTCCACGGAACTT  
TCACCAACGAGCTCATCAACCGGCCATCCGCGAGGGACCG  
GATGACGGAGTTCCGGGAGCGGTACCGCTCCGTGGACCTC 600  
CTGCTGGTGGACGACGTCCAGTTCATCGCCGGAAAGGAGC  
GCACCCAGGAGGAGTTTTTCCACACCTTCAACGCCCTTTA  
CGAGGCCCAACAAGCAGATCATCCTCTCCTCCGACCGGCCG 720  
CCCAAGGACATCCTCACCCCTGGAGGCGCGCCTGCGGAGCC  
GCTTTGAGTGGGGCCTGATCACCGACAATCCAGCCCCCGA  
CCTGGAAACCCGGATCGCCATCCTGAAGATGAACGCCAGC 840  
AGCGGGCCTGAGGATCCCGAGGACGCCCTGGAGTACATCG  
CCCGGCAGGTACCTCCAACATCCGGGAGTGGGAAGGGGC  
CCTCATGCGGGCATCGCCTTTCGCCTCCCTCAACGGCGTT 960  
GAGCTGACCCGCGCCGTGGCGGCCAAGGCTCTCCGACATC  
TTCGCCCCAGGGAGCTGGAGGCGGACCCCTTGAGATCAT  
CCGCAAAGCGGCGGGACCAGTTCGGCCTGAAACCCCGGGA 1080  
GGAGCTCACGGGGAGCGCCGCAAGAAGGAGGTGGTCCCTCC  
CCCGGCAGCTCGCCATGTACCTGGTGCGGGAGCTCACCCC  
GGCCTCCCTGCCCGAGATCGACCAGCTCAACGACGACCGG 1200  
GACCACACCACGGTCCTCTACGCCATCCAGAAGGTCCAGG  
AGCTCGCGGAAAGCGACCGGGAGGTGCAGGGCCTCCTCCG  
CACCTCCGGGAGGCGTGCACATGA

**FIG. 20A**



REPLACEMENT  
SHEET

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VSHEAVWQHVLEHIRRSITEVEFHTWFERIRPLGIRDGVL  
ELAVPTSFALDWIRRHAGLIQEGPRLPGAQAPRFELRVV  
PGVVVQEDIFQPPPSPPAQAPEDTFKTSWWGPTTPWPHG 120  
GAVAVAESPGRAYNPLFIYGGRLGKTYLMHAVGPLRAKR  
FPHMRLEYVSTETFTNELINRPSARDRMTEFRERYRSVDL  
LLVDDVQFIAGKERTQEEFFHTFNALYEAHKQIILSSDRP 240  
PKDILTLEARLSRFEWGLITDNPAPDLETRIAILKMNAS  
SGPEDPEDALEYIARQVTSNIREWEGALMRASPFASLNGV  
ELTRAVAAKALRHLRPRELEADPLEIIRKAAGPVRPETPG 360  
GAHGERRKKEVVLPRQLAMYLVRLETPASLPEIDQLNDDR  
DHTTVLYAIIQKVQELAESDREVQGLLRTLREACT

***FIG. 20B***

REPLACEMENT  
SHEET

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ATGAACATAACGGTTCCCAAAAACTCCTCTCGGACCAGC 40  
TTTCCCTCCTGGAGCGCATCGTCCCCTCTAGAAGCGCCAA  
CCCCCTCTACACCTACCTGGGGCTTTACGCCGAGGAAGGG 120  
GCCTTGATCCTCTTCGGGACCAACGGGGAGGTGGACCTCG  
AGGTCCGCCTCCCCGCCGAGGCCCAAAGCCTTCCCCGGGT 200  
GCTCGTCCCCGCCAGCCCTTCTTCCAGCTGGTGCGGAGC  
CTTCCTGGGGACCTCGTGGCCCTCGGCCTCGCCTCGGAGC 280  
CGGGCCAGGGGGGGCAGCTGGAGCTCTCCTCCGGGCGTTT  
CCGCACCCGGCTCAGCCTGGCCCCTGCCGAGGGCTACCCC 360  
GAGCTTCTGGTGCCCGAGGGGGAGGACAAGGGGGCCTTCC  
CCCTCCGGACGCGGATGCCCTCCGGGGAGCTCGTCAAGGC 440  
CTTGACCCACGTGCGCTACGCCGCGAGCAACGAGGAGTAC  
CGGGCCATCTTCCGCGGGGTGCAGCTGGAGTTCTCCCCC 520  
AGGGCTTCCGGGCGGTGGCCTCCGACGGGTACCGCCTCGC  
CCTCTACGACCTGCCCCCTGCCCAAGGGTTCCAGGCCAAG 600  
GCCGTGGTCCCCGCCCGGAGCGTGGACGAGATGGTGCGGG  
TCCTGAAGGGGGCGGACGGGGCCGAGGCCGTCTCGCCCT 680  
GGGCGAGGGGGTGTGGCCCTGGCCCTCGAGGGCGGAAGC  
GGGGTCCGGATGGCCCTCCGCCTCATGGAAGGGGAGTTCC 760  
CCGACTACCAGAGGGTCATCCCCCAGGAGTTCGCCCTCAA  
GGTCCAGGTGGAGGGGGAGGCCCTCAGGGAGGCGGTGCGC 840  
CGGGTGAGCGTCCTCTCCGACCGGCAGAACCACCGGGTGG  
ACCTCCTTTTGGAGGAAGGCCGGATCCTCCTCTCCGCCGA 920  
GGGGGACTACGGCAAGGGGCAGGAGGAGGTGCCCGCCCAG  
GTGGAGGGGCCGGACATGGCCGTGGCCTACAACGCCCGCT 1000  
ACCTCCTCGAGGCCCTCGCCCCCGTGGGGGACCGGGCCCA  
CCTGGGCATCTCCGGGGCCACGAGCCCCGAGCCTCATCTGG 1080  
GGGGACGGGGAGGGGTACCGGGCGGTGGTGGTGCCCCCTCA  
GGGTCTAG 1128

**FIG. 21A**

REPLACEMENT  
SHEET

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MNITVPKKLLSDQLSLLERIVPSRSANPLYTYLGGLYAEEG 40  
ALILFGTNGEVDLEVRLPAEAQSLPRVLVPAQPFFQLVRS  
LPGDLVALGLASEPGQGGQLELSSGRFRTRLSLAPAEGYP 120  
ELLVPEGEDKGAFPLRTRMPSGELVKALTHVRYAASNEEY  
RAIFRGVQLEFSPQGFRAVASDGYRLALYDLPLPQGFQAK 200  
AVVPARSVDEMVRVLKGADGAEAVLALGEGVLALALEGGS  
GVRMALRLMEGEFPDYQRVIPQEFALKVQVEGEALREAVR 280  
RVSVLSDRQNHRVDLLLEEGRILLSAEGDYGKGQEEVPAQ  
VEGPDMAVAYNARYLLEALAPVGDRAHLGISGPTSPSLIW 360  
GDGEGYRAVVVPLRVZ

***FIG. 21B***

# REPLACEMENT SHEET

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MNITVPKKLLSDQLSLERIVPSRSANPLYTYLGLYAEAGALILFGTNGEVDLEVRLP  
MAE MKFTVEREHLKPLQOVSGPLGGRPTLPILGNLLQVADGTLSTGTDL  
MEMVARVALV MKFIIEREQLKPLQOVSGPLGGRPTLPILGNLLKVTENTL  
SLTGTDLMEMMARVSL MQFSISRENLLKPLQOVCGVLSNRPNIPV  
NNVLLQIEDYRLTITGTDLLEVELSSQTQLS MHFTIQREALLKPLQ  
LVAGVVERRQTLFVLSNVLLVWQQQLSLTGTDLLEVELGRVQLE  
MKFTIQNDILTNNLKKITRVLVKNISFPILENILIQVEDGTLSTTTN  
LEIELISKIEII \*

T. th. beta  
E. coli. bet  
P. mirab. be  
H. infl. bet  
P. put. beta  
B. cap. beta

AQSLP-RVLVPAQFFQIVRSPLPGDLVALGLASEPGQGQLELSSGRFRTRLSLAPAE  
GY QPHEPGATTVPARKFFDIDICRGLP-EGAEIAVQLE--GERMLVRSGRS  
RFSLSLTPAADF QSHEIGATTVPARKFFDIWRGLP-EGAEISVELD--  
GDRLLVRSGRSRSFSLSTLPASDF SSSENGTFTIPAKKFLDICRTLS-  
DDSEITVTFE--QDRALVQSGRSRFTLATQPAEEY EPAEPGEITVPARK  
LMDICKSLP-NDALIDIKVD--EQKLLVKAGRSRFTLSTLPANDF  
TKYIPGKTTISGRKILNICRTLS-EKSKIKMQLK--NKKMYISSENSNYIL  
STLSADTF \*

T. th. beta  
E. coli. bet  
P. mirab. be  
H. infl. bet  
P. put. beta  
B. cap. beta

PELLVPEGEDKGAFFLRTMPSGELVKALTHVRYAASNEEYRAIFRGVQLEFSPQGFRAV  
PNLDD--WQSEVEFTLPQAT----MKRLIEATQFSMAHQDVRYYLNGMLFETEGEELRTV  
PNLDD--WQSEVEFTLPQAT----LKRLIESTQFSMAHQDVRYYLNGMLFETEGEELRTV  
PNLTD--WQSEVDFELPQNT----LRLIEATQFSMANQDARYFLNGMKFETEGNLLRTV  
PTVEE--GPGSLTCNLEQSK----LRLIERTSFAMAQQDVRYYLNGMLLEVS  
SRNTLRV PNHQN--FDYISKFDISSNI----LKEMIEKTEFSMGKQDVRYYLNGMLLEKKDKFLRSV  
\*

T. th. beta  
E. coli. bet  
P. mirab. be  
H. infl. bet  
P. put. beta  
B. cap. beta

ASDGYRLALYDLPLPQGFQA--KAVVPARSVDEMVRVLKGADGAEAVLALGEGVLALALE  
ATDGHRLAVCSMPIGQSLPS-HSVIVPRKGVIELMRMLDG-GDNPLRVQIGSN  
NIRAHVG ATDGHRLAVCAMDIGQSLPG-HSVIVPRKGVIELMRMLLDGSGESLLQ  
LQIGSNLRAHV ATDGHRLAVCTISLEQELQN-HSVILPRKGVLELVRLL  
LET-NDEPARLQIGTNLVRHLK STDGHRALCSMSAPIEQEDRHQVIVPRK  
GILELARLLTD-PEGMVSIVLGQHHIRATTG ATDGYRLAISYTLKKDINF-  
FSIIIPNKAVMELLKLLNT-QPQLNILLIGSNSIRIYTK

T. th. beta  
E. coli. bet  
P. mirab. be  
H. infl. bet  
P. put. beta  
B. cap. beta

FIG. 22A

# REPLACEMENT SHEET

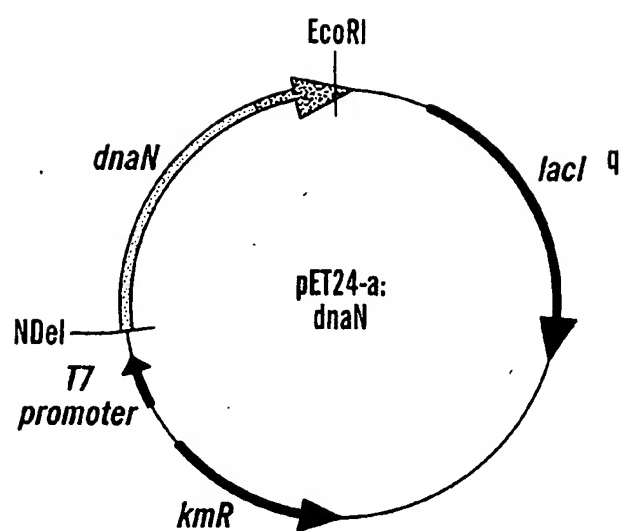
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T. th. beta	GGSGVRMALRLMEGEFPDYQRVIPQEFALKVQVEGEALREAVRRVSVLSRQNRHVRVDLLL	
E. coli. bet	---DFIFTSKLVDRFPDYRRVLPKNPDKHLKQAFARAAAILSNEKFRGVRLVY	
P. mirab. be	---DFIFTSKLVDRFPDYRRVLPKNPTKTVIAGCDILKQAFSRAAILSNEKFRGVRLN	
H. infl. bet	---NTVFTSKLIDGRFPDYRRVLPKNATKIVEGNWEMLKQAFARASILSNERARSVRLSL	
P. put. beta	---EFTFTSKLVDRFPDYRRVLPKNATKIVEGNWEMLKQAFARASILSNERARSVRLSL	
B. cap. beta	---NLIFTQLEGEYDPDYKSVLFKEKKNPIITNSILLKKSLLRVAILAHEKFCGIEIKI	
	... * * * * *	
T. th. beta	EEGRILLSAEGDYGK-GQEEVPAQVEGPDMAVAYNARYLLEALAPVG-DRAHLGISGPTS	
E. coli. bet	SENQLKITANNPEQEEAEIILDTYSGAEMEIGFNVSYLVDLNLKCNVVRMMLTDSVS	
P. mirab. be	TNGQLKITANNPEQEEAEIIVDVQYQGEEMEIGFNVSYLVDLNLKCNVVRMMLTDSVS	
H. infl. bet	KENQLKITASNTEHEEAEIIVDVNNGEELVGFNVTYILDVNLKCNVVRMMLTDSVS	
P. put. beta	AAGQLKIQANNPEQEEAEIISVDYEGSSLEIGFNVSYLVDLNLKCNVVRMMLTDSVS	
B. cap. beta	ENGKFKVLSDNQEEETAEDLFEIDYFGEKIEISINVYLLDVINNICKSENIALFLNKS	
	... * * * * *	
T. th. beta	PSLIWGDG-EGYRAVVVPLRVZ	(ID#108)
E. coli. bet	SVQIEDAASQSAAYVMPMRLZ	(ID#109)
P. mirab. be	SVQVENVASAAAAYVMPMRL-	(ID#110)
H. infl. bet	SCLINCESSCEYVIMPRL-	(ID#111)
P. put. beta	SALLQEAENDDSSYVMPMRL-	(ID#112)
B. cap. beta	SIQIEAENSSNAYVVMMLLKR-	(ID#113)
	... * * * * *	

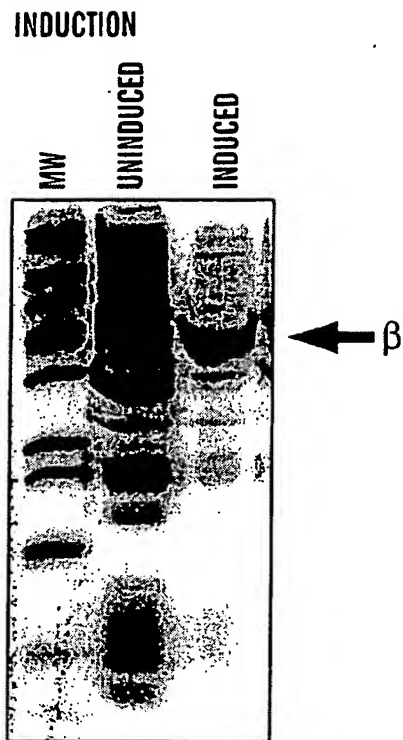
FIG. 22B

REPLACEMENT  
SHEET

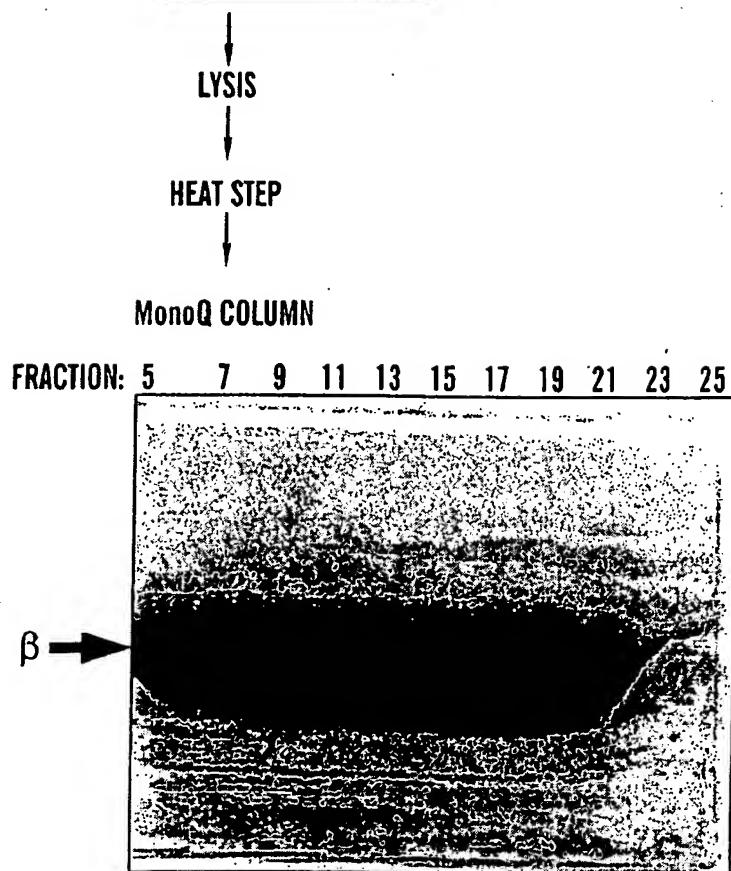
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**FIG. 23**



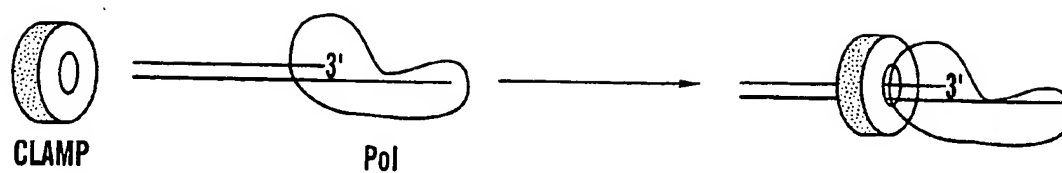
**FIG. 24A**



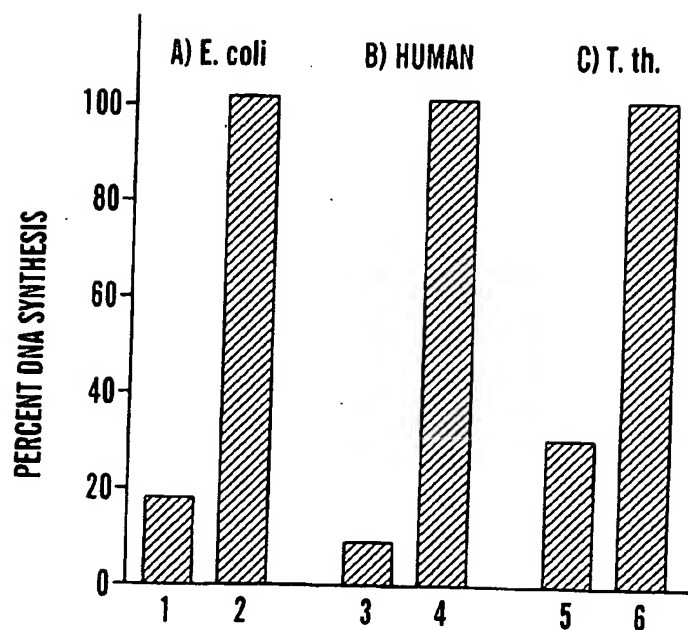
**FIG. 24B**

REPLACEMENT  
SHEET

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**FIG. 25A**

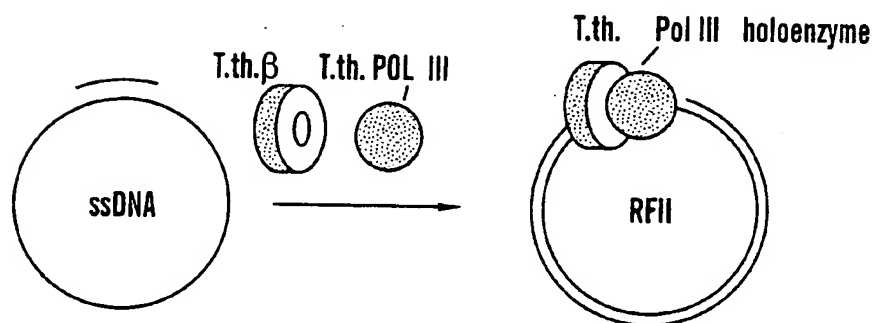


**FIG. 25B**

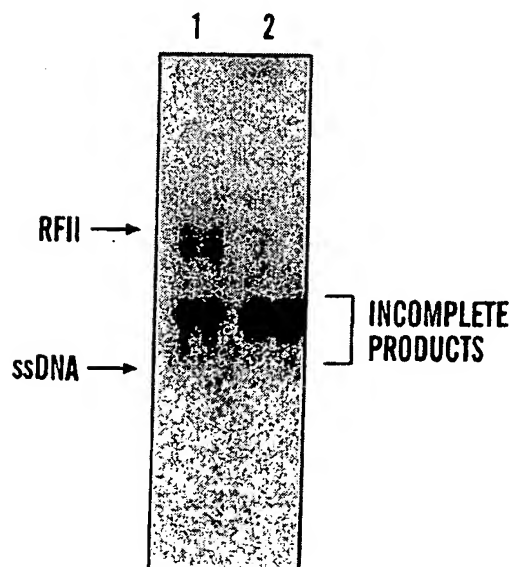


REPLACEMENT  
SHEET

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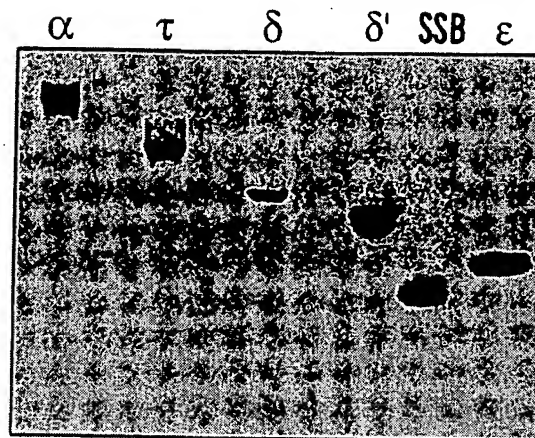
**FIG. 26A**



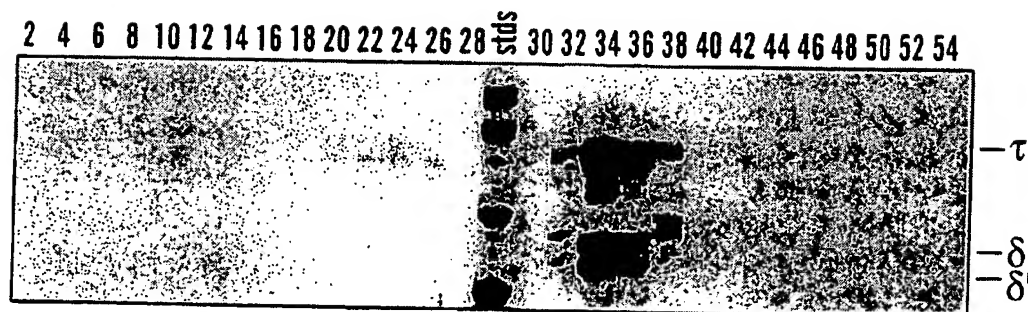
**FIG. 26B**

# REPLACEMENT SHEET

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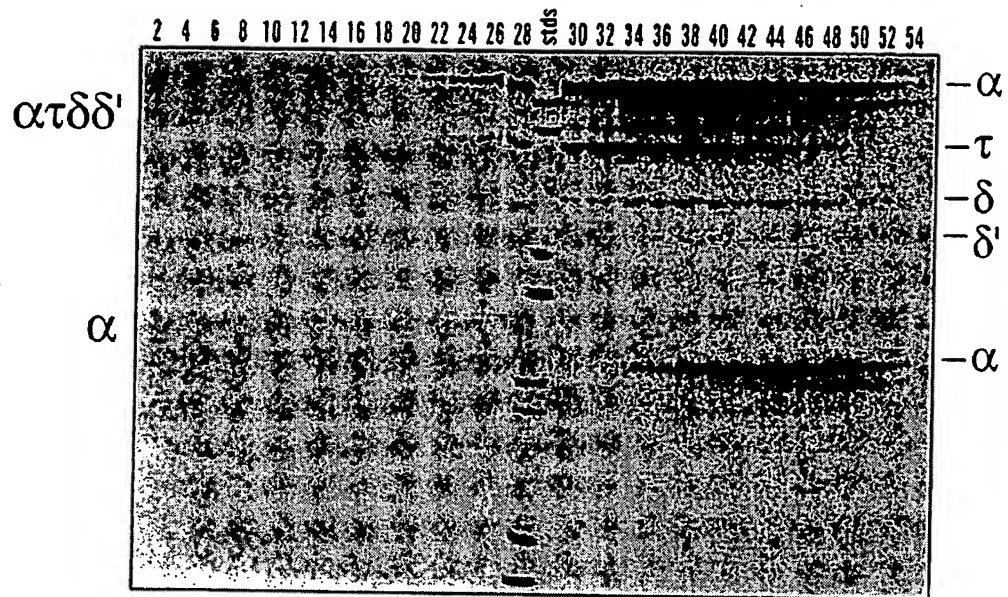
**FIG. 27**



**FIG. 28**

REPLACEMENT  
SHEET

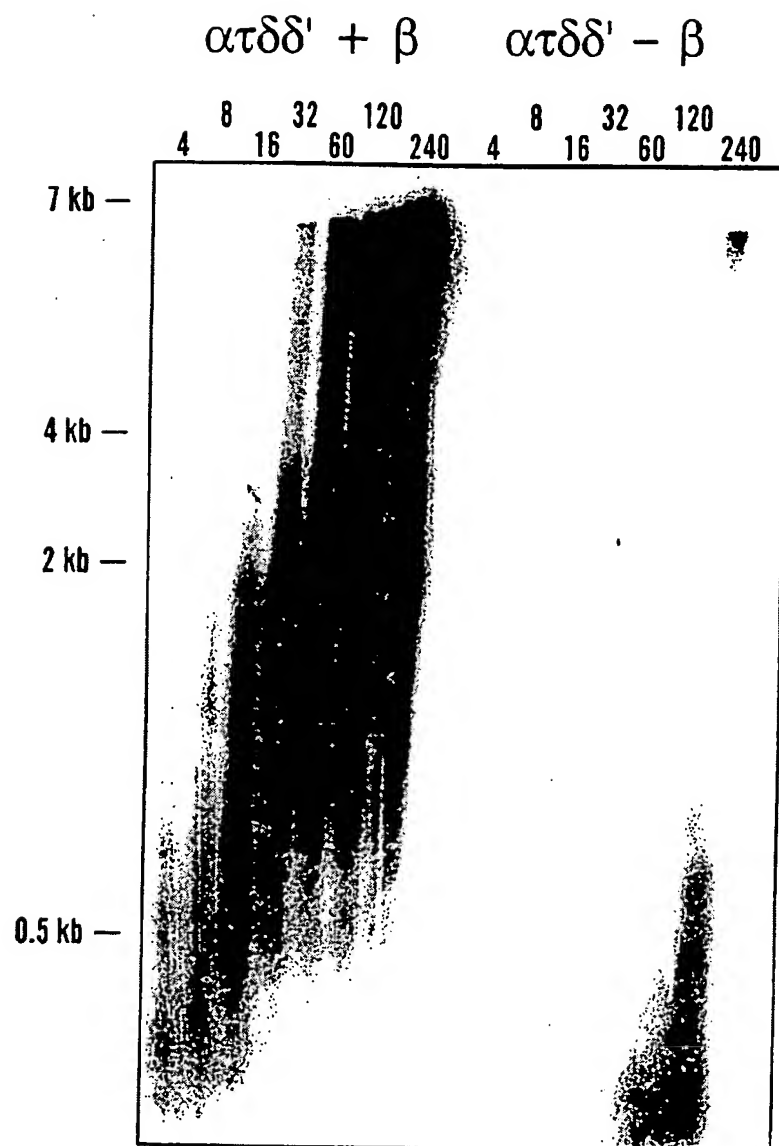
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**FIG. 29**

REPLACEMENT  
SHEET

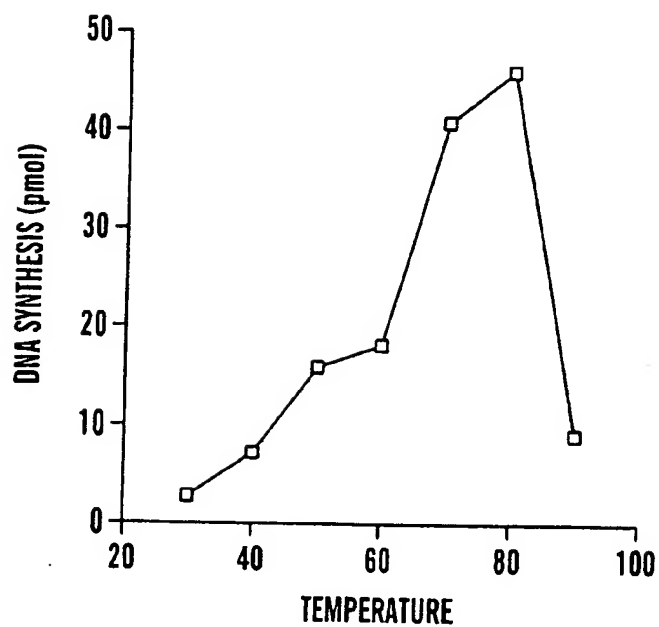
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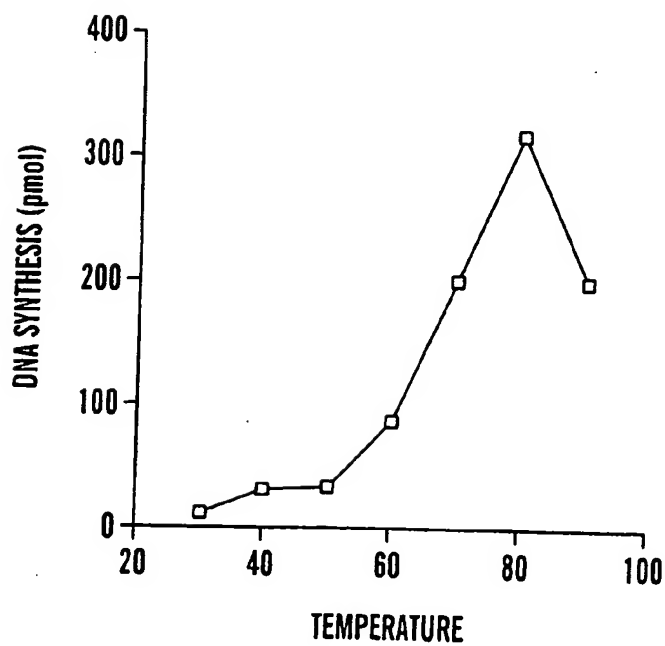
**FIG. 30**

REPLACEMENT  
SHEET

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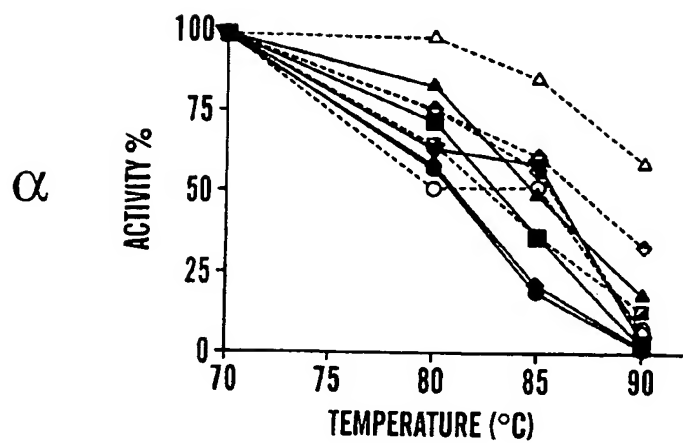
**FIG. 31**



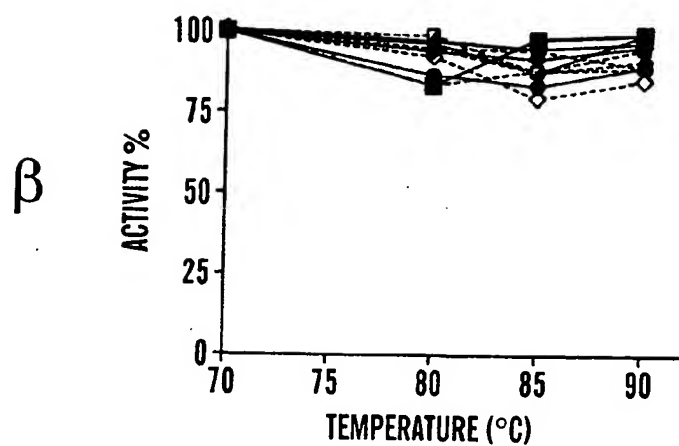
**FIG. 32**

# REPLACEMENT SHEET

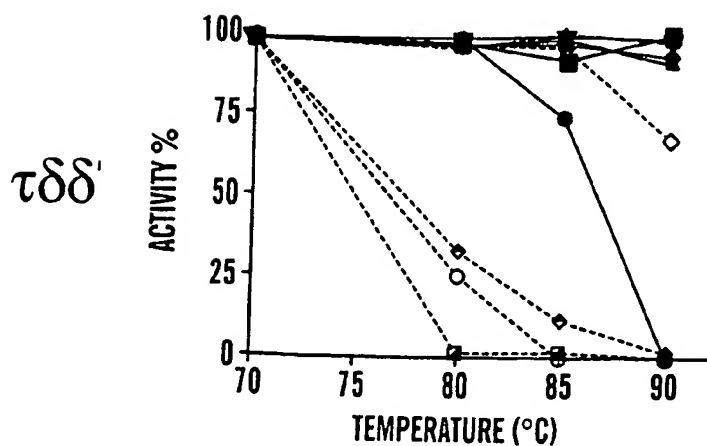
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**FIG. 33A**



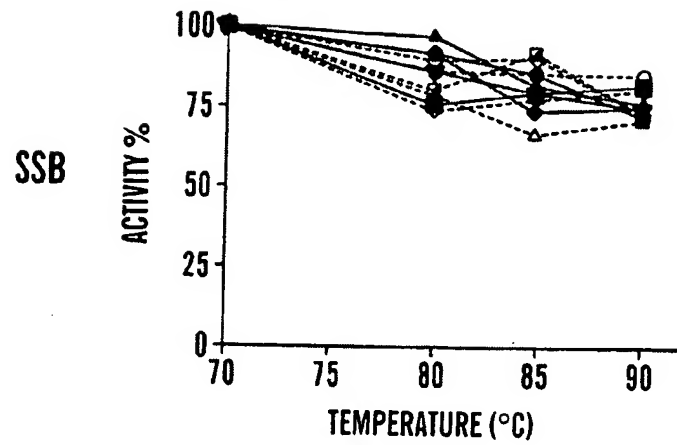
**FIG. 33B**



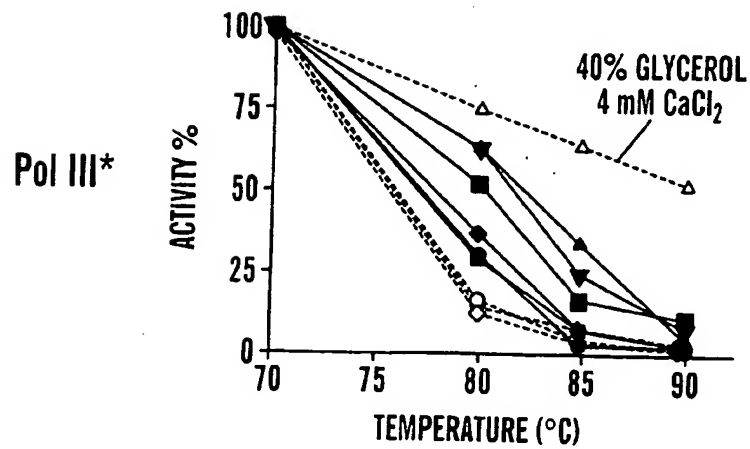
**FIG. 33C**

REPLACEMENT  
SHEET

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**FIG. 33D**



**FIG. 33E**

# REPLACEMENT SHEET

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ATGAGTAAGGATTTTCGTCCACCTTCACCTGCACACCCAGTTCTCACTCCT	
GGACGGGGCTATAAAGATAGACGAGCTCGTGAAAAAGGCAAAGGAGTATG	100
GATACAAAGCTGTCGGAATGTCAGACCACGGAAACCTCTTCGGTTTCGTAT	
AAATTCTACAAAGCCCTGAAGGCGGAAGGAATTAAGCCCATAATCGGCAT	200
GGAAGCCTACTTTACCACGGGTTTCGAGGTTTGACAGAAAGACTAAAACGA	
GCGAGGACAACATAACCGACAAGTACAACCACCACCTCATACTTATAGCA	300
AAGGACGAAAAGGTCTAAAGAACTTAATGAAGCTCTCAACCCTCGCCTAC	
AAAGAAGGTTTTTTACTACAAACCCAGAATTGATTACGAACTCCTTGAAAA	400
GTACGGGGAGGGCCTAATAGCCCTTACCGCATGCCTGAAAGGTGTTCCCA	
CCTACTACGCTTCTATAAACGAAGTGAAAAAGGCGGAGGAATGGGTAAAG	500
AAGTTCAAGGATATATTCGGAGATGACCTTTATTTAGAACTTCAAGCGAA	
CAACATTCAGAACAGGAAGTGGCAAACAGGAACTTAATAGAGATAGCCA	600
AAAAGTACGATGTGAAACTCATAGCGACGCAGGACGCCCACTACCTCAAT	
CCCGAAGACAGGTACGCCACACGGTTCTTATGGCACTTCAAATGAAAAA	700
GACCATTACGAACTGAGTTCGGGAAACTTCAAGTGTTCAAACGAAGACC	
TTCACTTTGCTCCACCCGAGTACATGTGGAAAAAGTTTGAAGGTAAAGTTC	800
GAAGGCTGGGAAAAGGCACTCCTGAACACTCTCGAGGTAATGGAAAAGAC	
AGCGGACAGCTTTGAGATATTTGAAAACCTCCACCTACCTCCTTCCCAAGT	900
ACGACGTTCCGCCCCGACAAAACCTTGAGGAATACCTCAGAGAACTCGCG	
TACAAAGGTTTAAGACAGAGGATAGAAAGGGGACAAGCTAAGGATACTAA	1000
AGAGTACTGGGAGAGGCTCGAGTACGAACTGGAAGTTATAAACAAAATGG	
GCTTTGCGGGATACTTCTTGATAGTTCAGGACTTCATAAACTGGGCTAAG	1100
AAAAACGACATACCTGTTGGACCCGGAAGGGGAAGTGCTGGAGGTTCCCT	
CGTCGCATACGCCATCGGAATAACGGACGTTGACCCTATAAAGCACGGAT	1200
TCCTTTTTTGAGAGGTTCTTAAACCCCGAAAGGGTTTCCATGCCGGATATA	
GACGTGGATTTCTGTGTCAGGACAACAGGGAAAAGGTCATAGAGTACGTAAG	1300
GAACAAGTACGGACACGACAACGTAGCTCAGATAATCACCTACAACGTAA	
TGAAGGCGAAGCAAACACTGAGAGACGTCGCAAGGGCCATGGGACTCCCC	1400
TACTCCACCGCGGACAACTCGCAAAACTCATTCTCAGGGGGACGTTCA	
GGGAACGTGGCTCAGTCTGGAAGAGATGTACAAAACGCCTGTGGAGGAAC	1500
TCCTTCAGAAGTACGGAGAACACAGAACGGACATAGAGGACAACGTAAAG	
AAGTTCAGACAGATATGCGAAGAAAGTCCGGAGATAAAACAGCTCGTTGA	1600
GACGGCCCTGAAGCTTGAAGGTCTCACGAGACACACCTCCCTCCACGCCG	
CGGGAGTGGTTATAGCACCAAAGCCCTTGAGCGAGCTCGTTCCCCTCTAC	1700
TACGATAAAGAGGGCGAAGTCGCAACCCAGTACGACATGGTTTCAGCTCGA	
AGAACTCGGTCTCCTGAAGATGGACTTCCTCGGACTCAAACCCCTCACAG	1800
AACTGAAACTCATGAAAGAACTCATAAAGGAAAGACACGGAGTGGATATA	
AACTTCCTTGAACTTCCCCTTGACGACCCGAAAGTTTACAAACTCCTTCA	1900
GGAAGGAAAAACCACGGGAGTGTTCCAGCTCGAAAGCAGGGGAATGAAAG	
AACTCCTGAAGAACTAAAGCCCGACAGCTTTGACGACATCGTTGCGGTC	2000
CTCGCACTCTACAGACCCGGACCTCTAAAGAGCGGACTCGTTGACACATA	
CATTAAGAGAAAGCACGGAAAAGAACCCGTTGAGTACCCCTTCCCGGAGC	2100
TTGAACCCGTCCTTAAGGAAACCTACGGAGTAATCGTTTATCAGGAACAG	
GTGATGAAGATGTCTCAGATACTTTCCGGCTTTACTCCCGGAGAGGCGGA	2200
TACCCTCAGAAAGGCGATAGGTAAGAAGAAAGCGGATTTAATGGCTCAGA	
TGAAAGACAAGTTCATACAGGGAGCGGTGGAAAGGGGATACCCTGAAGAA	2300
AAGATAAGGAAGCTCTGGGAAGACATAGAGAAGTTCGCTTCCTACTCCTT	
CAACAAGTCTCACTCGGTAGCTTACGGGTACATCTCCTACTGGACCGCCT	2400

**FIG. 34A**



# REPLACEMENT SHEET

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ACGTTAAAGCCCACTATCCCGCGGAGTTCTTCGCGGTAAAACTCACAAC	
GAAAAGAACGACAACAAGTTCCTCAACCTCATAAAAGACGCTAAACTCTT	2500
CGGATTTGAGATACTTCCCCCGACATAAACAGAGTGATGTAGGATTTA	
CGATAGAAGGTGAAAACAGGATAAGGTTCTGGGCTTGCGAGGATAAAGGGA	2600
GTGGGAGAGGAACTGCTAAGATAATCGTTGAAGCTAGAAAGAAGTATAA	
GCAGTTCAAAGGGCTTGCGGACTTCATAAACAAAACCAAGAACAGGAAGA	2700
TAAACAAGAAAGTCGTGGAAGCACTCGTAAAGGCAGGGGCTTTTGACTTT	
ACTAAGAAAAAGAGGAAAGAACTACTCGCTAAAGTGGCAAACCTCTGAAAA	2800
AGCATTAATGGCTACACAAAACCTCCCTTTTCGGTGCACCGAAAGAAGAAG	
TGGAAGAACTCGACCCCTTAAAGCTTGAAAAGGAAGTTCTCGGTTTTTAC	2900
ATTTACAGGGCACCCCTTGACAACTACGAAAAGCTCCTCAAGAACCGCTA	
CACACCCATTGAAGATTTAGAAGAGTGGGACAAGGAAAGCGAAGCGGTGC	3000
TTACAGGAGTTATCACGGAACCTCAAAGTAAAAAAGACGAAAAACGGAGAT	
TACATGGCGGTCTTCAACCTCGTTGACAAGACGGGACTAATAGAGTGTGT	3100
CGTCTTCCCGGGAGTTTACGAAGAGGCAAAGGAACTGATAGAAGAGGACA	
GAGTAGTGGTAGTCAAAGGTTTTCTGACGAGGACCTTGAAACGGAAAAT	3200
GTCAAGTTCGTGGTGAAAGAGGTTTTCTCCCTGAGGAGTTCGCAAAGGA	
GATGAGGAATACCCTTTATATATTCTTAAAAAGAGAGCAAGCCCTAAACG	3300
GCGTTGCCGAAAACTAAAGGGAATTATTGAAAACAACAGGACGGAGGAC	
GGATACAACCTTGTTCTCACGGTTGATCTGGGAGACTACTTCGTTGATTT	3400
AGCACTCCACAAAGATATGAACTAAAGGCTGACAGAAAGGTTGTAGAGG	
AGATAGAAAAACTGGGAGTGAAGGTCATAATTTAGTAAATAACCCTTACT	3500
TCCGAGTAGTCCCC	

**FIG. 34B**

# REPLACEMENT SHEET

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MSKDFVHLHLHTQFSLLDGAIKIDELVKKAKEYGYKAVGMSDHGNLFGSY	
KFYKALKAEIGKPIIGMEAYFTTGSRFDRKTKTSEDNITDKYNHHLILIA	100
KDDKGLKNLMKLSTLAYKEGFYKPRIDYELLEKYGEGLIALTACLKGVP	
TYYASINEVKKAEWVKKFKDIFGDDLYLELQANNIPEQEVANRNLIIEIA	200
KKYDVKLIATQDAHYLNPEDRYAHTVLMALQMKKTIHELSSGNFKCSNED	
LHFAPPEYMWKKFEGKFEGWEKALLNTLEVMEKTADSFEIFENSTYLLPK	300
YDVPPDKTLEEYLRELAYKGLRQRIERGQAKDTKEYWERLEYELEVINKM	
GFAGYFLIVQDFINWAKKNDIPVGPGRGSAGGSLVAYAIGITDVPDIKHG	400
FLFERFLNPERVSMPIIDVDFCQDNREKVIEWVRNKYGHDNVAQIITYNV	
MKAKQTLRDVARAMGLPYSTADKLAKLIPQGDVQGTWLSLEEMYKTPVEE	500
LLQKYGEHRDIEDNVKKFRQICEESPEIKQLVETALKLEGLTRHTSLHA	
AGVVIAPKPLSELVPLYDKEGEVATQYDMVQLEELGLLKMDFLGLKTLT	600
ELKLMKELIKERHGVDFINLELPLDDPKVYKLLQEGKTTGVFQLESRGMK	
ELLKKLKPDSFDDIVAVLALYRPGPLKSGLVDTYIKRKHGKEPVEYPFPE	700
LEPVLKETYGVIIVYQEQVMKMSQILSGFTPGADTLRKAIGKKKADLMAQ	
MKDKFIQGAVERGYPEEKIRKLWEDIEKFASYSFNKSHSVAYGYISYWTA	800
YVKAHYPAEFFAVKLTTEKNDNKFLNLIKDAKLFGFEILPPDINKSDVGF	
TIEGENRIRFGLARIKGVGEETAKIIVEARKKYKQFKGLADFINKTKNRK	900
INKKVVEALVKAGAFDFTKKKRKELLAKVANSEKALMATQNSLFGAPKEE	
VEELDPLKLEKEVLGFYISGHPLDNYEKLKKNRYTPIEDLEEWKKESEAV	1000
LTGVITELKVKKTKNGDYMAVFNLVDKTGLIECVVFPGVYEEAKELIEED	
RVVVVKGFLDEDLETVNVKFVVEVFSPEEFAKEMRNTLYIFLKREQALN	1100
GVAEKLKGIIENNRTEDGYNLVLTVDLGDYFVDLALPQDMKLKADRKVVE	
EIEKLGVKVII	1161

**FIG. 35**

# REPLACEMENT SHEET

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ATGAACTACGTTCCCTTCGCGAGAAAGTACAGACCGAAATTCTTCAGGGA	
AGTAATAGGACAGGAAGCTCCCGTAAGGATACTCAAAAACGCTATAAAAA	100
ACGACAGAGTGGCTCACGCCTACCTCTTTGCCGGACCGAGGGGGGTGGG	
AAGACGACTATTGCAAGAATTCTCGCAAAAGCTTTGAACTGTAAAAATCC	200
CTCCAAAGGTGAGCCCTGCGGTGAGTGCGAAAACCTGCAGGGAGATAGACA	
GGGGTGTGTTCCCTGACTTAATTGAAATGGATGCCGCCTCAAACAGGGGT	300
ATAGACGACGTAAGGGCATTAAAAGAAGCGGTCAATTACAAACCTATAAA	
AGGAAAGTACAAGGTTTACATAATAGACGAAGCTCACATGCTCACGAAAG	400
AAGCTTTCAACGCTCTCTTAAAAACCTCGAAGAGCCCCCTCCCAGAACT	
GTTTTCGTCCTTTGTACCACGGAGTACGACAAAATTCTTCCCACGATACT	500
CTCAAGGTGTCAGAGGATAATCTTCTCAAAGGTAAAGAAAGGAAAAAGTAA	
TAGAGTATCTAAAAAAGATATGTGAAAAGGAAGGGATTGAGTGCGAAGAG	600
GGAGCCCTTGAGGTTCTGGCTCATGCCTCTGAAGGGTGCATGAGGGATGC	
AGCCTCTCTCCTGGACCAGGCGAGCGTTTACGGGGAAGGCAGGGTAACAA	700
AAGAAGTAGTGGAAGAACTTCCTCGGAATTCTCAGTCAGGAAAGCGTTAGG	
AGTTTTCTGAAATTGCTTCTGAACTCAGAAGTGGAACGAAGCTATAAAGTT	800
CCTCAGAGAACTCTCAGAAAAGGGCTACAACCTGACCAAGTTTTGGGAGA	
TGTTAGAAGAGGAAGTGAGAAACGCAATTTTAGTAAAGAGCCTGAAAAAT	900
CCCGAAAGCGTGTTTCAGAACTGGCAGGATTACGAAGACTTCAAAGACTA	
CCCTCTGGAAGCCCTCCTCTACGTTGAGAACCTGATAAACAGGGGTAAAG	1000
TTGAAGCGAGAACGAGAGAACCCTTAAGAGCCTTTGAACTCGCGGTAATA	
AAGAGCCTTATAGTCAAAGACATAATTCCCGTATCCCAGCTCGGAAGTGT	1100
GGTAAAGGAAACCAAAAAGGAAGAAAAGAAAGTTGAAGTAAAAGAAGAGC	
CAAAAGTAAAAGAAGAAAAACCAAGGAGCAGGAAGAGGACAGGTTCCAG	1200
AAAGTTTTTAAACGCTGTGGACGGCAAAATCCTTAAAAGAATACTTGAAGG	
GGCAAAAAGGGAAGAAAGAGACGGAAAAATCGTCCTAAAGATAGAAGCCT	1300
CTTATCTGAGAACCATGAAAAAGGAATTTGACTCACTAAAGGAGACTTTT	
CCTTTTTTTAGAGTTTGAACCCGTGGAGGATAAAAAAAACCTCAGAAGTC	1400
CAGCGGGACGAGGCTGTTTTTAAAGGTAAAGGAGCTCTTCAATGCAAAAAT	
ACTCAAAGTACGAAGTAAAAGCTAAGGTCATAAAGGTGAGAATGCCCGTG	1500
GAAGAGATAGGGCTGTTTAAACGCACTAATAGACGGCTTGCCCAGGTACGC	
ACTCACGAGGACGAAGGAAAAGGGAAAGGGAGAAGTTTTCGTTTTAGCGA	1600
CTCCTTATAAAGTCAAGGAATTGATGGAAGCTATGGAGGGTATGAAAAAA	
CACATAAAGGATTTAGAAATCCTCGGAGAGACGGATGAGGATTTAACTTT	1700
TTAAAGTATGGGTGTATCTGAGCAAAGGTTTAAAGCTAAAAACAAACCTGA	
AACCCGCAGGGGACCAGCCGAAAGCCATAAAAAAACTCCTTGAAAACCTA	1800
AGGAAAGGCGTAAAAGAACAAACACTTCTCGGAGTCACGGGAAGCGGAAA	
GACTTTTACTCTAGCAAACGTAATAGCGAAGTACAACAAACCAACTCTTG	1900
TGGTAGTTCACAACAAAATTTCTCGCGGCACAGCTATACAGGGAGTTTAAA	
GAAC TATTCCCTGAAAACGCTGTAGAGTACTTTGTCTCTTACTACGACTA	2000
TTACCAACCTGAAGCCTACATTCCCGAAAAAGATTTATACATAGAAAAGG	
ACGCGAGTATAAACGAAAGCTGGAACGTTTCAGACACTCCGCCACGATAT	2100
CCGTTCTAGAAAGGAGGGACGTTATAGTAGTTGCTTCAGTTTCTTGCCATA	
TACGGACTCGGGAAACCTGAGCACTACGAAAACCTGAGGATAAAACTCCA	2200
AAGGGGAATAAGACTGAACTTGAGTAAGCTCCTGAGGAAACTCGTTGAGC	
TAGGATATCAGAGAAATGACTTTGCCATAAAGAGGGCTACCTTCTCGGTT	2300
AGGGGAGACGTGGTTGAGATAGTCCCTTCTCACACGGAAGATTACCTCGT	
GAGGGTAGAGTTCTGGGACGACGAAGTTGAAAGAATAGTCCTCATGGACG	2400
CTCTGAAC	

**FIG. 36**

REPLACEMENT  
SHEET

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MNYVPFARKYRPKFFREVIGQEAPVRILKNAIKNDRVAHAYLFAGPRGVG	
KTTIARILAKALNCKNPSKGEPGECENCREIDRGVFPDLIEMDAASNRG	100
IDDVRLALKEAVNYKPIKGKYKVYIIIDEAHMLTKEAFNALLKTLEPPPT	
VFVLCTTEYDKILPTILSRCQRIIFSQRKEKVIIEYLKKICEKEGIECEE	200
GALEVLAHASEGCMRDAASLLDQASVYGEGRVTKEVVENFLGILSQESVR	
SFLKLLLNSEVDEAIKFLRELSEKGYNLTKFWEMLEEEVRNAILVKSLKN	300
PESVVQNWQDYEDFKDYPLEALLYVENLINRGKVEARTREPLRAFELAVI	
KSLIVKDIIPVSQLGSVVKETKKEEKKVEVKEEPKVKEEKPKEQEEDRFQ	400
KVLNAVDGKILKRILEGAKREERDQKIVLKEASYLRTMKKEFDSLKETF	
PFLEFEPVEDKKKPQKSSGTRLF	473

**FIG. 37**

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**FIG. 38**

**FIG. 39**

# REPLACEMENT SHEET

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GTGGAAACCACAATATTCCAGTTCCAGAAAACCTTTTTTCACAAAACCTCC	
GAAGGAGAGGGTCTTCGTCTTCATGGAGAAGAGCAGTATCTCATAAGAA	100
CCTTTTTGTCTAAGCTGAAGGAAAAGTACGGGGAGAATTACACGGTTCTG	
TGGGGGGATGAGATAAGCGAGGAGGAATTCTACACTGCCCTTTCCGAGAC	200
CAGTATATTCGGCGGTTCAAAGGAAAAAGCGGTGGTCATTTACAACCTCG	
GGGATTTCTGAAGAAGCTCGGAAGGAAGAAAAAGGAAAAAGAAAGGCTT	300
ATAAAAGTCCTCAGAAACGTAAAGAGTAACTACGTATTTATAGTGACGA	
TGCGAAACTCCAGAAACAGGAACCTTTCTTCGGAACCTCTGAAATCCGTAG	400
CGTCTTTCGGCGGTATAGTGGTAGCAAACAGGCTGAGCAAGGAGAGGATA	
AAACAGCTCGTCCTTAAGAAGTTCAAAGAAAAAGGGATAAACGTAGAAAA	500
CGATGCCCTTGAATACCTTCTCCAGCTCACGGGTACAACCTTGATGGAGC	
TCAAACCTGAGGTTGAAAACTGATAGATTACGCAAGTGAAGAAAAATT	600
TTAACACTCGATGAGGTAAAGAGAGTAGCCTTCTCAGTCTCAGAAAACGT	
AAACGTATTTGAGTTCGTTGATTTACTCCTCTTAAAGATTACGAAAAGG	700
CTCTTAAAGTTTTGGACTCCCTCATTTCCTTCGGAATACACCCCTCCAG	
ATTATGAAAATCCTGTCCTCCTATGCTCTAAACTTTACACCCCTCAAGAG	800
GCTTGAAGAGAAGGGAGAGGACCTGAATAAGGCGATGGAAAGCGTGGGAA	
TAAAGAACAACCTTTCTCAAGATGAAGTTCAAATCTTACTTAAAGGCAAAC	900
TCTAAAGAGGACTTGAAGAACCTAATCCTCTCCCTCCAGAGGATAGACGC	
TTTTTCTAACTTTACTTTTCAAGGACACAGTGCAGTTGCTGGGGATTTCTT	1000
GACCTCAAGACTGGAGAGGGAAGTTGTGAAAAATACTTCTCATGGTGGAT	
AATCTTTTTTATGAAGTTTGCGGTTTTCGCTTTTCCCGGTTCT	1093

**FIG. 40**

VETTIFQFQKTFFTKPPKERVFLHGEEQYLIRTFLSKLKEYGENYTVL	
WGDEISEEEFYTALSETSIFGGSKEKAVVIYNFGDFLKKLGRKKKEKERL	100
IKVLRNVKSNYVFIVYDAKLQKQELSSEPLKSVASFGGIVVANRLSKERI	
KQLVLKKFKEKGINVENDALEYLLQLTGYNLMELKLEVEKLIDYASEKKI	200
LTLDEVKRVAFSVSENVNVFEFVDLLLLLDYKALKVLDLSISFGIHLPLQ	
IMKILSSYALKLYTLKRLEEKGEDLNKAMESVGIKNFLKMKFKSYLKAN	300
SKEDLKNLILSLQRIDAFSKLYFQDTVQLLRDFLTSRLEREVVKNTSHGG	

**FIG. 41**

# REPLACEMENT SHEET

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ATGGAAAAAGTTTTTTTGGAAAAACTCCAGAAAACCTTGCACATACCCGG	
AGGACTCCTTTTTTACGGCAAAGAAGGAAGCGGAAAGACGAAAACAGCTT	100
TTGAATTTGCAAAAGGTATTTTATGTAAGGAAAACGTACCTGGGGATGCG	
GAAGTTGTCCCTCCTGCAAACACGTAAACGAGCTGGAGGAAGCCTTCTTT	200
AAAGGAGAAATAGAAGACTTTAAAGTTTATAAGACAAGGACGGTAAAAAG	
CACTTCGTTTACCTTATGGGCGAACATCCCGACTTTGTGGTAATAATCCC	300
GAGCGGACATTACATAAAGATAGAACAGATAAGGGAAGTTAAGAACTTTG	
CCTATGTGAAGCCCCGCACTAAGCAGGAGAAAAGTAATTATAATAGACGAC	400
GCCCACGCGATGACCTCTCAGGCGGCAAACGCTCTTTTAAAGGTATTGGA	
AGAGCCACCTGCGGACACCACCTTTATCTTGACCACGAACAGGCGTTCTG	500
CAATCCTGCCGACTATCCTCTCCAGAACTTTTCAAGTGGAGTTCAAGGGC	
TTTTCAGTAAAAGAGGTTATGGAAATAGCGAAAGTAGACGAGGAAATAGC	600
GAAACTCTCTGGAGGCAGTCTAAAAAGGGCTATCTTACTAAAGGAAAACA	
AAGATATCCTAAACAAAGTAAAGGAATTCTTGAAAAACGAGCCGTTAAAA	700
GTTTACAAGCTTGCAAGTGAATTGCAAAAGTGGAACCTGAAAAGCAAAA	
ACTCTTCCTTGAAATTATGGAAGAATTGGTATCTCAAAAATTGACCGAAG	800
AGAAAAAAGACAATTACACCTACCTTCTTGATACGATCAGACTCTTTAA	
GACGGACTCGCAAGGGGTGTAAACGAACCTCTGTGGCTGTTTACGTTAGC	900
CGTTCAGGCGGATTAATAAACCGTTATTGATTCCGTAACATTTAAACCTT	
AATCTAAATTATGAGAGCCTTTGAAGGAGGTCTGGTATGGAAAATTTGAA	1000
GATTAGATATATAGATACGAGGAAGATAGGAACCGTGAGCGGTGTAAAAG	
T	1051

**FIG. 42**

MEKVFLEKLQKTLHIPGGLLFYKGESGKTKTAFEFAKGILCKENVPWGC	
GSCPSCKHVNELEEAFKGEIEDFKVYKDKDGKKHFVYLMGEHPDFVVI	100
PSGHYIKIEQIREVKNFAYVKPALSRRKVIIDDAHAMTSQAANALLKVL	
EEPPADTTFILTTNRRSAILPTILSRTEFQVEFKGFSVKEVMEIAKVDEEI	200
AKLSGGSLLKRAILLKENKDILNKVKEFLENEPLKVYKLASEFEKWEPEKQ	
KLFLEIMEELVSQKLTEEKDNYTYLLDTIRLFKDGGLARGVNEPLWLFTL	300
AVQAD	

**FIG. 43**

REPLACEMENT  
SHEET

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ATGAACTTCCTGAAAAAGTTCCTTTTACTGAGAAAAGCTCAAAAGTCTCC	
TTACTTCGAAGAGTTCTACGAAGAAATCGATTTGAACCAGAAGGTGAAAG	100
ATGCAAGGTTTGTAGTTTTTACTGCGAAGCCACAGAACTCGACGTAAAG	
AAGGCAAACTCCTTTCAATAGGTGCGGTTGAGGTTAAAAACCTGGAAAT	200
AGACCTCTCTAAATCTTTTTACGAGATACTCAAAAGTGACGAGATAAAGG	
CGGCGGAGATACATGGAATAACCAGGGAAGACGTTGAAAAGTACGGAAAG	300
GAACCAAAGGAAGTAATATACGACTTTCTGAAGTACATAAAGGGAAGCGT	
TCTCGTTGGCTACTACGTGAAGTTTGACGTCTCACTCGTTGAGAAGTACT	400
CCATAAAGTACTTCCAGTATCCAATCATCAACTACAAGTTAGACCTGTTT	
AGTTTCGTGAAGAGAGAGTACCAGAGTGGCAGGAGTCTTGACGACCTTAT	500
GAAGGAACTCGGTGTAGAAATAAGGGCAAGGCACAACGCCCTTGAAGATG	
CCTACATAACCGCTCTTCTTTTCTTAAAGTACGTTTACCCGAACAGGGAG	600
TACAGACTAAAGGATCTCCCGATTTTCCTT	

**FIG. 44**

MNFLKKFLLLRKAQKSPYFEEFYEEIDLNQKVKDARFVVFDCEATELDVK	
KAKLLSIGAVEVKNLEIDLKSFYEILKSDEIKAAEIHGITREDVEKYGK	100
EPKEVIYDFLKYIKGSVLVGYYVKFDVSLVEKYSIKYFQYPIINYKLDLF	
SFVKREYQSGRSLDDLMKELGVEIRARHNALEDAYITALLFLKYVYPNRE	200
YRLKDLPIFL	

**FIG. 45**



REPLACEMENT  
SHEET

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ATGCTCAATAAGGTTTTTATAATAGGAAGACTTACGGGTGACCCCGTTAT  
AACTTATCTACCGAGCGGAACGCCCCGTAGTAGAGTTTACTCTGGCTTACA 100  
ACAGAAGGTATAAAAACCAGAACGGTGAATTTTCAGGAGGAAAGTCACTTC  
TTTGACGTAAAGGCGTACGGAAAAATGGCTGAAGACTGGGCTACACGCTT 200  
CTCGAAAGGATACCTCGTACTCGTAGAGGGAAGACTCTCCCAGGAAAAGT  
GGGAGAAAGAAGGAAAGAAGTTCTCAAAGGTCAGGATAATAGCGGAAAAC 300  
GTAAGATTAATAAACAGGCCGAAAGGTGCTGAACTTCAAGCAGAAGAAGA  
GGAGGAAGTTCCTCCCATTTGAGGAGGAAATTGAAAAACTCGGTAAAGAGG 400  
AAGAGAAGCCTTTTACCGATGAAGAGGACGAAATACCTTTTTTAATTTGA  
GGAGGTTAAAGTATGGTAGTGAGAGCTCCTAAGAAGAAAGTTTGTATGTA 500  
CTGTGAACAAAAGAGAGAGCCAGATT

**FIG. 46**

MLNKVFIIGRLTGDPVITYLPSGTPVVEFTLAYNRRYKNQNGEFQEEESHF  
FDVKAYGKMAEDWATRFSGYLVLVEGRLSQEKWEKEGKKFSKVRIIAEN 100  
VRLINRPKGAELQAEIEEEVPPIEEEIEKLGKEEEKPFTDEEDEIPF

**FIG. 47**

# REPLACEMENT SHEET

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ATGCAATTTGTGGATAAACTTCCCTGTGACGAATCCGCCGAGAGGGCGGT	
TCTTGGCAGTATGCTTGAAGACCCCGAAAACATACCTCTGGTACTTGAAT	100
ACCTTAAAGAAGAAGACTTCTGCATAGACGAGCACAAGCTACTTTTCAGG	
GTTCTTACAAACCTCTGGTCCGAGTACGGCAATAAGCTCGATTTTCGTATT	200
AATAAAGGATCACCTTGAAAAGAAAACTTACTCCAGAAAATACCTATAG	
ACTGGCTCGAAGAACTCTACGAGGAGGCGGTATCCCCTGACACGCTTGAG	300
GAAGTCTGCAAAATAGTAAAACAACGTTCCGCACAGAGGGCGATAATTCA	
ACTCGGTATAGAACTCATTCACAAAGGAAAGGAAAACAAAGACTTTCACA	400
CATTAATCGAGGAAGCCCAGAGCAGGATATTTTCCATAGCGGAAAGTGCT	
ACATCTACGCAGTTTTACCATGTGAAAGACGTTGCGGAAGAAGTTATAGA	500
ACTCATTTATAAATTCAAAGCTCTGACAGGCTAGTCACGGGACTCCCAA	
GCGGTTTCACGGAACCTCGATCTAAAGACGACGGGATTCCACCCTGGAGAC	600
TTAATAATACTCGCCGCAAGACCCGGTATGGGGAAAACCGCCTTTATGCT	
CTCCATAATCTACAATCTCGCAAAAGACGAGGGAAAACCCCTCAGCTGTAT	700
TTTCCTTGGAATGAGCAAGGAACAGCTCGTTATGAGACTCCTCTCTATG	
ATGTCGGAGGTCCCACCTTTTCAAGATAAGGTCTGGAAGTATATCGAATGA	800
AGATTTAAAGAAGCTTGAAGCAAGCGCAATAGAACTCGCAAAGTACGACA	
TATACCTCGACGACACACCCGCTCTCACTACAACGGATTTAAGGATAAGG	900
GCAAGAAAGCTCAGAAAGGAAAAGGAAGTTGAGTTCGTGGCGGTGGACTA	
CTTGCAACTTCTGAGACCGCCAGTCCGAAAGAGTTCAAGACAGGAGGAAG	1000
TGGCAGAGGTTTCAAGAACTTAAAAGCCCTTGCAAAGGAACTTCACATT	
CCCGTTATGGCACCTTGCGCAGCTCTCCCGTGAGGTGAAAAGAGGAGTGA	1100
TAAAAGACCCAGCTTGCGGACCTCAGAGAATCCGGACAGATAGAACAGG	
ACGCAGACCTAATCCTTTTCTCCACAGACCCGAGTACTACAAGAAAAAG	1200
CCAAATCCCGAAGAGCAGGGTATAGCGGAAGTGATAATAGCCAAGCAAAG	
GCAAGGACCCACGGACATTGTGAAGCTCGCATTTATTAAGGAGTACACTA	1300
AGTTTGCAAACCTAGAAGCCCTTCTGAACAACCTCCTGAAGAAGAGGAA	
CTTTCCGAAATTATTGAAACACAGGAGGATGAAGGATTCGAAGATATTGA	1400
CTTCTGAAAATTAAGGTTTTATAATTTTATCTTGGCTATCCGGGGTAGCT	
CAATCGGCAGAGCGGGTGGCTG	1472

**FIG. 48**

MQFVDKLPCEDESRAVLGSMLEDPENIPLVLEYLKEEDFCIDEHKLLFR	
VLTNLWSEYGNKLDVFLIKDHLEKKNLLQKIPIDWLEELYEEAVSPDTLE	100
EVCKIVKQRSAQRAIIQLGITSTQFYHVKDVAEEVIELIYKFKSSDRLV	
GLPSGFTELDLKTTFHFGDLIIILARPFGMGKTAFLMSIIYNLAKDEGKP	200
SAVFSLEMSKEQLVMRLLSMMSEVPLFKIRSGSISNEDLKKLEASAIELA	
KYDIYLDLDDTPALTTTDLRIRARKLRKEKEVEFVAVDYLQLLRPPVRKSSR	300
QEEVAEVSRLKALAKELHIPVMALAQLSREVEKRSKRPQLADLRESGQ	
IEQDADLILFLHRPEYYKKKPNPEEQGIAEVIIAKQRQGPTDIVKLAFIK	400
EYTKFANLEALPEQPPEEEELSEIIETQEDEGFEDIDF	

**FIG. 49**

# REPLACEMENT SHEET

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ATGTCCTCGGACATAGACGAACTTAGACGGGAAATAGATATAGTAGACGT	
CATTTCCGAATACTTAACTTAGAGAAGGTAGGTTCCAATTACAGAACGA	100
ACTGTCCCTTTTACCCTGACGATACACCCTCCTTTTACGTGTCTCCAAGT	
AAACAAATATTCAAGTGTTCGGTTGCGGGGTAGGGGAGACGCGATAAA	200
GTTTCGTTTCCCTTTACGAGGACATCTCCTATTTTGAAGCCGCCCTTGAAC	
TCGCAAAACGCTACGGAAAGAAATTAGACCTTGAAAAGATATCAAAAGAC	300
GAAAAGGTATACGTGGCTCTTGACAGGGTTTGTGATTCTACAGGGAAAG	
CCTTCTCAAAAACAGAGAGGCAAGTGAGTACGTAAAGAGTAGGGGAATAG	400
ACCCTAAAGTAGCGAGGAAGTTTGATCTTGGGTACGCACCTTCCAGTGAA	
GCACTCGTAAAAGTCTTAAAAGAGAACGATCTTTTAGAGGCTTACCTTGA	500
AACTAAAAACCTCCTTTCTCCTACGAAGGGTGTTTACAGGGATCTCTTTC	
TTCGGCGTGTTCGTGATCCCGATAAAGGATCCGAGGGGAAGAGTTATAGGT	600
TTCGGTGGAAGGAGGATAGTAGAGGACAAATCTCCAAGTACATAAACTC	
TCCAGACAGCAGGGTATTTAAAAAGGGGAGAACTTATTCGGTCTTTACG	700
AGGCAAAGGAGTATATAAAGGAAGAAGGATTTGCGATACTTGTGGAAGGG	
TACTTTGACCTTTTGAGACTTTTTTCCGAGGGAATAAGGAACGTTGTTGC	800
ACCCCTCGGTACAGCCCTGACCCAAAATCAGGCAAACCTCCTTTCCAAGT	
TCACAAAAAAGGTCTACATCCTTTACGACGGAGATGATGCGGGAAGAAAG	900
GCTATGAAAAGTGCCATTCCCCTACTCCTCAGTGCAGGAGTGGAAGTTTA	
TCCCGTTTACCTCCCCGAAGGATACGATCCCGACGAGTTTATAAAGGAAT	1000
TCGGGAAAGAGGAATTAAGAAGACTGATAAACAGCTCAGGGGAGCTCTTT	
GAAACGCTCATAAAAACCGCAAGGGAAACTTAGAGGAGAAAACGCGTGA	1100
GTTTCAGGTATTATCTGGGCTTTATTTCCGATGGAGTAAGGCGCTTTGCTC	
TGGCTTCGGAGTTTCACACCAAGTACAAAGTTCCTATGGAAATTTTATTA	1200
ATGAAAATTGAAAAAAATTCTCAAGAAAAAGAAATTAACTCTCCTTTAA	
GGAAAAAATCTTCCTGAAAGGACTGATAGAATTAAAACCAAAAATAGACC	1300
TTGAAGTCCTGAACTTAAGTCCTGAGTTAAAGGAACTCGCAGTTAACGCC	
TTAAACGGAGAGGAGCATTTACTTCCAAAAGAAGTTCTCGAGTACCAGGT	1400
GGATAACTTGAGAGAACTTTTTAACAACATCCTTAGGGATTTACAAAAAT	
CTGGGAAAAAGAGGAAGAAAAGAGGGTTGAAAAATGTAAATACTTAATTA	1500
ACTTTAATAAATTTTATAGAGTTAGGA	

**FIG. 50**

MSSDIDELRREIDIVDVISEYLNLEKVGSNYRTNCPFHPDDTPSFYVSPS	
KQIFKCFGCGVGDAIKFVSLYEDISYFEAALELAKRYGKKLDLEKISKD	100
EKVYVALDRVCDFYRESLLKNREASEYVKSRGIDPKVARKFDLGYAPSSE	
ALVKVLKENDLLEAYLETKNLLSPTKGVYRDLFLRRVVIPIKDPRGRVIG	200
FGRRIVEDKSPKYINSPDSRVFKKGENLFLGLYEAKYIKEEGFAILVEG	
YFDLLRLFSEGIRNVVAPLGTALTQNQANLLSKFTKKVYILYDGD DAGRK	300
AMKSAIPLLLSAGVEVYPVYLPEGYDPDEFIKEFGKEELRRLINSSGELF	
ETLIKTARENLEEKTRFRYYLGFISDGVRRFALASEFHTKYKVPMEILL	400
MKIEKNSQEKEIKLSFKEKIFLKG LIELKPKIDLEVLNLSPELKELAVNA	
LNGEEHLLPKEVLEYQVDNLEKLFNNILRDLQKSGKKRKRGLKNVNT	498

**FIG. 51**

REPLACEMENT  
SHEET

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ATGCAAGATACCGCTACCTGCAGTATTTGTCAGGGGACGGGATTCGTAAA	
GACCGAAGACAACAAGGTAAGGCTCTGCGAATGCAGGTTCAAGAAAAGGG	100
ATGTAAACAGGGAACTAAACATCCCAAAGAGGTACTGGAACGCCAACTTA	
GACACTTACCACCCCAAGAACGTATCCCAGAACAGGGCACTTTTGACGAT	200
AAGGGTCTTCGTCCACAACCTTCAATCCCGAGGAAGGGAAAGGGCTTACCT	
TTGTAGGATCTCCTGGAGTCGGCAAACTCACCTTGCGGTTGCAACATTA	300
AAAGCGATTTATGAGAAGAAGGGAATCAGAGGATACTTCTTCGATACGAA	
GGATCTAATATTCAGGTTAAAACACTTAATGGACGAGGGAAAGGATACAA	400
AGTTTTTAAAAACTGTCTTAACTCACCGGTTTTTGGTTCTCGACGACCTC	
GGTTCTGAGAGGCTCAGTGACTGGCAGAGGGAACTCATCTCTTACATAAT	500
CACTTACAGGTATAACAACCTTAAGAGCACGATAATAACCACGAATTACT	
CACTCCAGAGGGAAGAAGAGAGTAGCGTGAGGATAAGTGCGGATCTTGCA	600
AGCAGACTCGGAGAAAACGTAGTTTCAAAAATTTACGAGATGAACGAGTT	
GCTCGTTATAAAGGGTTCGGACCTCAGGAAGTCTAAAAAGCTATCAACCC	700
CATCT	

**FIG. 52**

MQDTATCSICQGTGFVKTEDNKNVRLCECRFKKRDVNRELNIPKRYWNANL	
DTYHPKNVSQNRALLTIRVFNHFNPEEGKGLTFVGSPGVGKTHLAVATL	100
KAIYEKKGIRGYFFDTKDLIFRLKHLMDGKDTKFLKTVLNSPVLVLDL	
GSERLSDWQRELISYIITYRYNNLKSTIITNYSLOREESSVRISADLA	200
SRLGENVVSKIYEMNELLVIKGSDLRKSKKLSTPS	

**FIG. 53**

# REPLACEMENT SHEET

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ATGAAAAAGATTGAAAAATTTGAAGTGGAAAAATGTCTCGTTTAAAAAGCCT	
GGAAATAGATCCCGATGCAGGTGTGGTTCTCGTTTCCGTGGAAAAATTTCT	100
CCGAAGAGATAGAAGACCTTGTGCGTTTACTGGAGAAGAAGACGCGGTTT	
CGAGTCATCGTGAACGGTGTTCAAAAAAGTAACGGGGATCTAAGGGGAAA	200
GATACTTTCCCTTCTCAACGGTAATGTGCCTTACATAAAAGATGTTGTTT	
TCGAAGGAAACAGGCTGATTCTGAAAGTGCTTGGAGATTTCGCGCGGGAC	300
AGGATCGCCTCCAACTCAGAAGCACGAAAAACAGCTCGATGAACTGCT	
GCCTCCCGGAACAGAGATCATGCTGGAGGTTGTGGAGCCTCCGGAAGATC	400
TTTTGAAAAAGGAAGTACCACAACCAGAAAAGAGAGAAGAACCAAAGGGT	
GAAGAATTGAAGATCGAGGATGAAAACCACATCTTTGGACAGAAACCCAG	500
AAAGATCGTCTTCACCCCTCAAAAATCTTTGAGTACAACAAAAAGACAT	
CGGTGAAGGGCAAGATCTTCAAAATAGAGAAGATCGAGGGGAAAAGAACG	600
GTCTTCTGATTTACCTGACAGACGGAGAAGATTCTCTGATCTGCAAAGT	
CTTCAACGACGTTGAAAAGGTCGAAGGGAAAGTATCGGTGGGAGACGTGA	700
TCGTTGCCACAGGAGACCTCCTTCTCGAAAACGGGGAGCCCACCCTTTAC	
GTGAAGGGAATCACAAAACCTCCCGAAGCGAAAAGGATGGACAAATCTCC	800
GGTTAAGAGGGTGGAGCTCCACGCCCATACCAAGTTCAGCGATCAGGACG	
CAATAACAGATGTGAACGAATATGTGAAACGAGCCAAGGAATGGGGCTTT	900
CCCGCGATAGCCCTCACGGATCATGGGAACGTTTCAGGCCATACCTTACTT	
CTACGACGCGGCGAAAAGAAGCTGGAATAAAGCCCATTTTCGGTATCGAAG	1000
CGTATCTGGTGAGTGACGTGGAGCCCGTCATAAGGAATCTCTCCGACGAT	
TCGACGTTTGGAGATGCCACGTTTCGTTCCTCGACTTCGAGACGACGGG	1100
TCTCGACCCGCGAGGTGGATGAGATCATCGAGATAGGAGCGGTGAAGATAC	
AGGGTGGCCAGATAGTGGACGAGTACCACACTCTCATAAAGCCTTCCAGG	1200
GAGATCTCAAGAAAAAGTTTCGGAGATCACCGGAATCACTCAAGAGATGCT	
GGAAAACAAGAGAAGCATCGAGGAAGTTCTGCCGGAGTTCTTCGGTTTTTC	1300
TGGAAGATTCCATCATCGTAGCACACAACGCCAACTTCGACTACAGATTT	
CTGAGGCTGTGGATCAAAAAAGTGATGGGATTGGACTGGGAAAGACCCTA	1400
CATAGATACGCTCGCCCTCGCAAAGTCCCTTCTCAAACCTGAGAAGCTACT	
CTCTGGATTCCGTTGTGGAAAAGCTCGGATTGGGTCCCTTCCGGCACCAC	1500
AGGGCCCTGGATGACGCGAGGGTCACCGCTCAGGTTTTCTCAGGTTTCGT	
TGAGATGATGAAGAAGATCGGTATCACGAAGCTTTCAGAAATGGAGAAGT	1600
TGAAGGATACGATAGACTACACCGCGTTGAAACCCCTTCCACTGCACGATC	
CTCGTTTCAAGACAAAAAGGGATTGAAAAACCTATACAACTGGTTTTCTGA	1700
TTCTTATATAAAGTACTTCTACGGTGTTCGAGGATCCTCAAAAGTGAGC	
TCATCGAGAACAGAGAAGGACTGCTCGTGGGTAGCGCGTGTATCTCCGGT	1800
GAGCTCGGACGTGCCGCCCTCGAAGGAGCGAGTGATTCAGAACTCGAAGA	
GATCGCGAAGTTCTACGACTACATAGAAGTCATGCCGCTCGACGTTATAG	1900
CCGAAGATGAAGAAGACCTAGACAGAGAAAGACTGAAAGAAGTGTAACGA	
AACTCTACAGAATAGCGAAAAAATTGAACAAGTTTCGTTCGTATGACCGG	2000
TGATGTTTCAATTTCTCGATCCCGAAGATGCCAGGGGCAGAGCTGCACTTC	
TGGCACCTCAGGGAAACAGAACTTCGAGAATCAGCCCGCACTCTACCTC	2100
AGAACGACCGAAGAAATGCTCGAGAAGGCGATAGAGATATTCAAGATGA	
AGAGATCGCGAGGGAAAGTCGTGATAGAGAATCCCAACAGAATAGCCGATA	2200
TGATCGAGGAAGTGCAGCCGCTCGAGAAAAAATTCACCCGCCGATCATA	
GAGAACGCCGATGAAATAGTGAGAAACCTCACCATGAAGCGGGCGTACGA	2300
GATCTACGGTGATCCGCTTCCCGAAATCGTCCAGAAGCGTGTGGAAAAGG	

**FIG. 54A**

REPLACEMENT  
SHEET

62/83

AACTGAACGCCATCATAAATCATGGATACGCCGTTCTCTATCTCATCGCT 2400  
CAGGAGCTCGTTCAGAAATCTATGAGCGATGGTTACGTGGTTGGATCCAG  
AGGATCCGTCGGGTCTTCACTCGTGGCCAATCTCCTCGGAATAACAGAGG 2500  
TGAATCCCCTACCACCACATTACAGGTGTCCAGAGTGCAAATACTTTGAA  
GTTGTCTGAAGACGACAGATACGGAGCGGGTTACGACCTTCCCAACAAGAA 2600  
CTGTCCAAGATGTGGGGCTCCTCTCAGAAAAGACGGCCACGGCATAACCGT  
TTGAAACGTTTCATGGGGTTCGAGGGTGACAAGGTCCCCGACATAGATCTC 2700  
AACTTCTCAGGAGAGTATCAGGAACGTGCTCATCGTTTTGTGGAAGAACT  
CTTCGGTAAAGACCACGTCTATAGGGCGGGAACCATAAACACCATCGCGG 2800  
AAAGAAGTGCGGTGGGTACGTGAGAAGCTACGAAGAGAAAACCGGAAAG  
AAGCTCAGAAAGGCGGAAATGGAAGACTCGTTTCCATGATCACGGGAGT 2900  
GAAGAGAACGACGGGTGAGCAGCCAGGGGGGCTCATGATCATAACCGAAAG  
ACAAAGAAGTCTACGATTTCACTCCCATAACAGTATCCAGCCAACGATAGA 3000  
AACGCAGGTGTGTTACACACGCACTTCGCATACGAGACGATCCATGATGA  
CCTGGTGAAGATAGATGCGCTCGGCCACGATGATCCCACTTTCATCAAGA 3100  
TGCTCAAGGACCTCACCGGAATCGATCCCATGACGATTCCCATGGATGAC  
CCCGATACGCTCGCCATATTCACTTCTGTGAAGCCTCTTGGTGTGGATCC 3200  
CGTTGAGCTGGAAGCGATGTGGGAACGTACGGAATTCCGGAGTTCGGAA  
CCGAGTTTGTGAGGGGAATGCTCGTTGAAACGAGACCAAAGAGTTTCGCC 3300  
GAGCTTGTGAGAATCTCAGGACTGTACACGGTACGGACGTCTGGTTGAA  
CAACGCACGTGATTGGATAAACCTCGGCTACGCCAAGCTCTCCGAGGTTA 3400  
TCTCGTGTAGGGACGACATCATGAACTTCCTCATAACAAAGGAATGGAA  
CCGTCACTTGCCTTCAAGATCATGGAAAACGTACGGAAGGGAAAGGGTAT 3500  
CACAGAAGAGATGGAGAGCGAGATGAGAAGGCTGAAGGTTCCAGAATGGT  
TCATCGAATCCTGTAAAAGGATCAAATATCTCTTCCCGAAAGCTCACGCT 3600  
GTGGCTTACGTGAGTATGGCCTTCAGAATTGCTTACTTCAAGGTTCACTA  
TCCTCTTCAGTTTTACGCGGCGTACTTCACGATAAAAGGTGATCAGTTCG 3700  
ATCCGGTTCTCGTACTCAGGGGAAAAGAAGCCATAAAGAGGCGCTTGAGA  
GAACTCAAAGCGATGCCTGCCAAAGACGCCCAGAAGAAAAACGAAGTGAG 3800  
TGTTCTGGAGGTGCCCCTGGAAATGATACTGAGAGGTTTTTCCTTCCTAC  
CGCCCACATCTTCAAATCCGACGCGAAGAAATTTCTGATAGAAGGAAAC 3900  
TCGCTGAGAATTCCGTTCAACAAACTTCCAGGACTGGGTGACAGCGTTGC  
CGAGTCGATAATCAGAGCCAGGGAAGAAAAGCCGTTCACTTCGGTGGAAG 4000  
ATCTCATGAAGAGGACCAAGGTCAACAAAAATCACATAGAGCTGATGAAA  
AGCCTGGGTGTTCTCGGGGACCTTCCAGAGACGGAACAGTTACGCTTTT 4100  
C

**FIG. 54B**

# REPLACEMENT SHEET

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MKKIENLKWKNVSFKSLEIDPDAGVVLVSVEKFSEEIEDLVRLLLEKKTRF	
RVIVNGVQKSNGDLRGKILSLLNGNVPYIKDVVFEGNRLILKVLGDFARD	100
RIASKLRSTKKQLDELLPPGTEIMLEVVEPPEDLLKKEVPQPEKREEPKG	
EELKIEDENHIFGQKPRKIVFTPSKIFEYNKKTSVKGKIFKIEKIEGKRT	200
VLLIYLTGDGEDSLICKVFNDVEKVEGKVSVDVIVATGDLLLENGEPTLY	
VKGITKLPEAKRMDKSPVKRVELHAHTKFSQDAITDVNEYVKRAKEWGF	300
PAIALTDHGNVQAIPIFYDAAKEAGIKPIFGIEAYLVSDVEPVIRNLSDD	
STFGDATFVVLDFETTGLDPQVDEIIEIGAVKIQGGQIVDEYHTLIKPSR	400
EISRKSSEITGITQEMLENKRSIEEVLPEFLGFLEDSIIIVAHNANFDYRF	
LRLWIKKVMGLDWERPYIDTLALAKSLLKLSYSLDSVVEKLGLGPFRHH	500
RALDDARVTAQVFLRFVEMMKIGITKLSEMEKLDKDTIDYTALKPFHCTI	
LVQNKKGKLNLYKLVSDSYIKYFYGVPRILKSELINREGLLVGSACISG	600
ELGRAALEGASDSELEEIAKFYDYIEVMPLDVIAEDEEDLDRERLKEVYR	
KLYRIAKKLNKFVVMTGDVHFLDPEDARGRAALLAPQGNRNFNENQPALYL	700
RTTEEMLEKAIEIFEDEEIIAREVVIENPNRIADMIEEVQPLEKKLHPPII	
ENADEIVRNLTMKRAYEIIYGDPLPEIVQKRVEKELNAIINHGYAVLYLIA	800
QELVQKSMDSGYVVGSRGSSVLNLLGITEVNPPLPPHYRCPECKYFE	
VVEDDRYGAGYDLPNKNCPRCGAPLRKDGHGIPFETFMGFEGDKVPDIDL	900
NFSGEYQERAHRFVEELFGKDHVYRAGTINTIAERSAVGYVRSYEEKTGK	
KLRKAEMERLVSMITGVKRTTGQHPGGLMIIPKDKEVYDFTPIQYPANDR	1000
NAGVFTTHFAYETIHDDLVKIDALGHDDPTFIKMLKDLTGIDPMTIPMDD	
PDTLAI FSSVKPLGVDPELESDVGTYGIPEFGTEFVRGMLVETRPKSFA	1100
ELVRISGLSHGTDVWLN NARDWINLGYAKLSEVISCRDDIMNFLIHKGME	
PSLAFKIMENVRKKGKITEEMESEMRRLKVPEWFIESCCKRIKYLFPKAHA	1200
VAYVSMAFRIAYFKVHYPLQFYAAYFTIKGDQFDPVLVLRGKEATKRRLR	
ELKAMPAKDAQKNEVSVLEVALEMILRGFSFLPPDIFKSDAKKFLIEGN	1300
SLRIPFNKL PGLGDSVAESIIRAREEKPFTSVEDLMKRTKV NKNHIELMK	
SLGVLGDL PETEQFTLF	1367

**FIG. 55**

REPLACEMENT  
SHEET

64/83

GTGCTCGCCATGATATGGAACGACACCGTTTTTTGCGTCGTAGACACAGA	
AACCACGGGAACCGATCCCTTTGCCGGAGACCGGATAGTTGAAATAGCCG	100
CTGTTCCCTGTCTTCAAGGGGAAGATCTACAGAAACAAAGCGTTTCACTCT	
CTCGTGAATCCCAGAATAAGAATCCCTGCGCTGATTCAGAAAGTTCACGG	200
TATCAGCAACATGGACATCGTGGAAGCGCCAGACATGGACACAGTTTACG	
ATCTTTTCAGGGATTACGTGAAGGGAACGGTGCTCGTGTTTCACAACGCC	300
AACTTCGACCTCACTTTTCTGGATATGATGGCAAAGGAAACGGGAACTT	
TCCAATAACGAATCCCTACATCGACACACTCGATCTTTCAGAAGAGATCT	400
TTGGAAGGCCTCATTCTCTCAAATGGCTCTCCGAAAGACTTGGAATAAAA	
ACCACGATACGGCACCGTGCTCTTCCAGATGCCCTGGTGACCGCAAGAGT	500
TTTTGTGAAGCTTGTTGAATTTCTTGGTGAAAACAGGGTCAACGAATTCA	
TACGTGGAACCGGGG	567

**FIG. 56**

MLAMIWNDTVFCVVDTETTGTDPFAGDRIVEIAAVPVFKGKIYRNKAFHS	
LVNPRIRIPALIQKVHGISNMDIVEAPMDTVYDLFRDYVKGTVLVFHNA	100
NFDLTFLDMMAKETGNFPITNPYIDTLDLSEEIFGRPHSLKWLSERLGIK	
TTIRHRALPDALVTARVFVKLVFLGENRVNEFIRGKRG	189

**FIG. 57**



# REPLACEMENT SHEET

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GTGGAAGTTCTTTACAGGAAGTACAGGCCAAAGACTTTTTCTGAGGTGT	
CAATCAGGATCATGTGAAGAAGGCAATAATCGGTGCTATTCAGAAGAACA	100
GCGTGGCCACGGATACATATTCGCCGGTCCGAGGGGAACGGGGAAGACT	
ACTCTTGCCAGAATTCTCGCAAAATCCCTGAACTGTGAGAACAGAAAGGG	200
AGTTGAACCCTGCAATTCCTGCAGAGCCTGCAGAGAGATAGACGAGGGAA	
CCTTCATGGACGTGATAGAGCTCGACGCGGCCCTCCACAGAGGAATAGAC	300
GAGATCAGAAGAATCAGAGACGCCGTTGGATACAGGCCGATGGAAGGTAA	
ATACAAAGTCTACATAATAGACGAAGTTCACATGCTCACGAAAGAAGCCT	400
TCAACGCGCTCCTCAAAACACTCGAAGAACCTCCTTCCCACGTCGTGTTC	
GTGCTGGCAACGACAAACCTTGAGAAGGTTCTTCCCACGATTATCTCGAG	500
ATGTCAGGTTTTTCGAGTTCAGAAACATTCCCGACGAGCTCATCGAAAAGA	
GGCTCCAGGAAGTTGCGGAGGCTGAAGGAATAGAGATAGACAGGGAAGCT	600
CTGAGCTTCATCGCAAAAAGAGCCTCTGGAGGCTTGAGAGACGCGCTCAC	
CATGCTCGAGCAGGTGTGGAAGTTCTCGGAAGGAAAGATAGATCTCGAGA	700
CGGTACACAGGGCGCTCGGGTTGATACCGATACAGGTTGTTTCGCGATTAC	
GTGAACGCTATCTTTTCTGGTGATGTGAAAAGGGTCTTCACCGTTCTCGA	800
CGACGTCTATTACAGCGGGAAGGACTACGAGGTGCTCATTCAGGAAGCAG	
TCGAGGATCTGGTCGAAGACCTGGAAGGGGAGAGAGGGGTTTACCAGGTT	900
TCAGCGAACGATATAGTTCAGGTTTCGAGACAACTTCTGAATCTTCTGAG	
AGAGATAAAGTTCGCCGAAGAAAAACGACTCGTCTGTAAAGTGGGTTCGG	1000
CTTACATAGCGACGAGGTTCTCCACCACAAACGTTTCAGGAAAACGATGTC	
AGAGAAAAAAACGATAATTCAAATGTACAGCAGAAAGAAGAGAAGAAAGA	1100
AACGGTGAAGGCAAAAGAAGAAAAACAGGAAGACAGCGAGTTCGAGAAAC	
GCTTCAAAGAACTCATGGAAGAACTGAAAGAAAAGGGCGATCTCTCTATC	1200
TTTGTCGCTCTCAGCCTCTCAGAGGTGCAGTTTGACGGAGAAAAGGTGAT	
TATTTCTTTTGATTTCATCGAAAGCTATGCATTACGAGTTGATGAAGAAA	1300
AACTGCCTGAGCTGGAAAACATTTTTTCTAGAAAACTCGGGAAAAAAGTA	
GAAGTTGAACTTCGACTGATGGGAAAAGAAGAAACAATCGAGAAGGTTTC	1400
TCAGAAGATCCTGAGATTGTTTGAACAGGAGGGA	

**FIG. 58**

MEVLYRKYPKTFSEVVNQDHVKKAIIGAIQKNSVAHGYIFAGPRGTGKT	
TLARILAKSLNCENRKGVEPCNSCRACREIDEGTFMDVIELDAASNRGID	100
EIRRIRDAVGYPMEGKYKVYIIDEVHMLTKEAFNALLKTLEPPSHVVF	
VLATTNLEKVPPTIISRCQVFEFRNIPDELIEKRLQEVAAEAGIEIDREA	200
LSFIAKRASGGLRDALTMLEQVWKFSEGBKIDLETVHRALGLIPIQVVRDY	
VNAIFSGDVKRVFTVLDDVYYSBKDYEVLIQEAVEDLVEDLERERGVYQV	300
SANDIVQVSRQLLNLLREIKFAEEKRLVCKVGSAYIATRFSTTNVQENDV	
REKNDNSNVQKKEKKETVKAKEEKQEDSEFEKRFKELMEELKEKGDLSI	400
FVALSLSEVQFDGEKVIISFDSSKAMHYELMKKKLPELENIFSRKLGGKV	
EVELRLMGKEETIEKVSQKILRLFEQEG	478

**FIG. 59**

# REPLACEMENT SHEET

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ATGAAAGTAACCGTCACGACTCTTGAATTGAAAGACAAAATAACCATCGC	
CTCAAAAGCGCTCGCAAAGAAATCCGTGAAACCCATTCTTGCTGGATTTT	100
TTTTCGAAGTGAAAGATGGAAATTTCTACATCTGCGCGACCGATCTCGAG	
ACCGGAGTCAAAGCAACCGTGAATGCCGCTGAAATCTCCGGTGAGGCACG	200
TTTTGTGGTACCAGGAGATGTCATTCAGAAGATGGTCAAGGTTCTCCAG	
ATGAGATAACGGAACTTTCTTTAGAGGGGGATGCTCTTGTTATAAGTTCT	300
GGAAGCACCGTTTTTCAGGATCACCACCATGCCCGCGGACGAATTTCCAGA	
GATAACGCCTGCCGAGTCTGGAATAACCTTCGAAGTTGACACTTCGCTCC	400
TCGAGGAAATGGTTGAAAAGGTCATCTTCGCCGCTGCCAAAGACGAGTTC	
ATGCGAAATCTGAATGGAGTTTTCTGGGAACTCCACAAGAATCTTCTCAG	500
GCTGGTTGCAAGTGATGGTTTCAGACTTGCACTTGCTGAAGAGCAGATAG	
AAAACGAGGAAGAGGCGAGTTTCTTGCTCTCTTTGAAGAGCATGAAAGAA	600
GTTCAAAACGTGCTGGACAACACAACGGAGCCGACTATAACGGTGAGGTA	
CGATGGAAGAAGGGTTTCTCTGTCGACAAATGATGTAGAAACGGTGATGA	700
GAGTGGTCGACGCTGAATTTCCCGATTACAAAAGGGTGATCCCCGAAACT	
TTCAAAACGAAAGTGGTGGTTTCCAGAAAAGA ACTCAGGGAATCTTTGAA	800
GAGGGTGATGGTGATTGCCAGCAAGGGAAGCGAGTCCGTGAAGTTCGAAA	
TAGAAGAAAACGTTATGAGACTTG TGAGCAAGAGCCCGGATTATGGAGAA	900
GTGGTCGATGAAGTTGAAGTTCAAAAAGAAGGGGAAGATCTCGTGATCGC	
TTTCAACCCGAAGTTCATCGAGGACGTTTTGAAGCACATTGAGACTGAAG	1000
AAATCGAAATGAACTTCGTTGATTCTACCAGTCCATGTCAGATAAATCCA	
CTCGATATTTCTGGATACCTTTACATAGTGATGCCCATCAGACTGGCA	1098

**FIG. 60**

MKVTVTTLLELKDKITIASKALAKKSVKPILAGFLFEVKDGNFYICATDLE	
TGVKATVNAAEISGEARFVVPGDVIQKMKVLPDEITELSLLEGDALVISS	100
GSTVFRITTMPADEFPFITPAESGITFEVDTSLLEEMVEKVIFAAKDEF	
MRNLNGVFWELHKNLLRLVASDGFRLALAE EQIENEE EASFLLSLKSMKE	200
VQNVLDNTTEPTITVRYDGRRVSLSTNDVETVMRVVDAEFDPYKRVIPET	
FKTKVVSRKELRESLKRVMVIAASKGSESVKFEIEENVMLVSKSPDYGE	300
VVDEVEVQKEGEDLVIAFNPKFIEDVLKHIETEEIEMNFVDSTSPCQINP	
LDISGYLYIVMPIRLA	366

**FIG. 61**

# REPLACEMENT SHEET

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ATGCCAGTCACGTTTCTCACAGGTACTGCAGAACTCAGAAGGAAGAATT	
GATAAAGAACTCCTGAAGGATGGTAACGTGGAGTACATAAGGATCCATC	100
CGGAGGATCCCGACAAGATCGATTTTCATAAGGTCTTTACTCAGGACAAAG	
ACGATCTTTTCCAACAAGACGATCATTGACATCGTCAATTTTCGATGAGTG	200
GAAAGCACAGGAGCAGAAGCGTCTCGTTGAACTTTTGAAAAACGTACCGG	
AAGACGTTTCATATCTTCATCCGTTCTCAAAAAACAGGTGGAAAGGGAGTA	300
GCGCTGGAGCTTCCGAAGCCATGGGAAACGGACAAGTGGCTTGAGTGGAT	
AGAAAAGCGCTTCAGGGAGAATGGTTTGCTCATCGATAAAGATGCCCTTC	400
AGCTGTTTTTCTCCAAGGTTGGAACGAACGACCTGATCATAGAAAGGGAG	
ATTGAAAACTGAAAGCTTATTCGAGGACAGAAAGATAACGGTAGAAGA	500
CGTGGAAGAGGTCGTTTTTACCTATCAGACTCCGGGATACGATGATTTTT	
GCTTTGCTGTTTCCGAAGGAAAAAGGAAGCTCGCTCACTCTCTTCTGTCTG	600
CAGCTGTGGAAAACACAGAGTCCGTGGTGATTGCCACTGTCCTTGCGAA	
TCACTTCTTGGATCTCTTCAAAATCCTCGTTCTTGTGACAAAGAAAAGAT	700
ACTACACCTGGCCTGATGTGTCCAGGGTGTCCAAAGAGCTGGGAATTCCC	
GTTCCCTCGTGTGGCTCGTTTTCTCGTTTCTCCTTTAAGACCTGGAAATT	800
CAAGGTGATGAACCACCTCCTCTACTACGATGTGAAGAAGGTTAGAAAGA	
TACTGAGGGATCTCTACGATCTGGACAGAGCCGTGAAAAGCGAAGAAGAT	900
CCAAAACCGTTCTTCCACGAGTTCATAGAAGAGGTGGCACTGGATGTATA	
TTCTCTTCAGAGAGATGAAGAA	972

**FIG. 62**

MPVTFLTGTAEQKEELIKKLLKDG NVEYIRIHPEDDPKIDFIRSLLRK	
TIFSNTIIDI VNFDEWKAQEQKRLVELLKNVPEDVHIFIRSQKTGGKGV	100
ALELPKPWETDKWLEWIEKRFRENGLLIDKDALQLFFSKVGTNDLIIERE	
IEKLKAYSEDRKITVEDVEEVFTYQTPGYDDFCFAVSEGKRKLAHSLLS	200
QLWKTTESVVIATVLANHFLDLFKILVLVTKKRYTWPDVSRVSKELGIP	
VPRVARFLGFSFKTWKFKVMNHLLYYDVKKVRKILRDLYDLDRVAVKSEED	300
PKPFFHEFIEEVALDVYSLQRDEE	

**FIG. 63**

# REPLACEMENT SHEET

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ATGAACGATTTGATCAGAAAGTACGCTAAAGATCAACTGGAACTTTGAA	
AAGGATCATAGAAAAGTCTGAAGGAATATCCATCCTCATAAATGGAGAAG	100
ATCTCTCGTATCCGAGAGAAGTATCCCTTGAACCTCCCGAGTACGTGGAG	
AAATTTCCCCCGAAGGCCTCGGATGTTCTGGAGATAGATCCCGAGGGGGA	200
GAACATAGGCATAGACGACATCAGAACGATAAAGGACTTCCTGAACTACA	
GCCCCGAGCTCTACACGAGAAAGTACGTGATAGTCCACGACTGTGAAAGA	300
ATGACCCAGCAGGCGGCGAACGCGTTTCTGAAGGCCCTTGAAGAACCACC	
AGAATACGCTGTGATCGTTCTGAACACTCGCCGCTGGCATTATCTACTGC	400
CGACGATAAAGAGCCGAGTGTTTCAGAGTGGTTGTGAACGTTCCAAAGGAG	
TTCAGAGATCTCGTGAAAGAGAAAATAGGAGATCTCTGGGAGGAACTTCC	500
ACTTCTTGAGAGAGACTTCAAAACGGCTCTCGAAGCCTACAACTTGGTG	
CGGAAAAACTTTCTGGATTGATGGAAAGTCTCAAAGTTTGGAGACGGAA	600
AAACTCTTGAAAAAGGTCCTTTCAAAGGCCTCGAAGGTTATCTCGCATG	
TAGGGAGCTCCTGGAGAGATTTTCAAAGGTGGAATCGAAGGAATTCTTTG	700
CGCTTTTTTGATCAGGTGACTAACACGATAACAGGAAAAGACGCGTTTCTT	
TTGATCCAGAGACTGACAAGAATCATTCTCCACGAAAACACATGGGAAAG	800
CGTTGAAGATCAAAAAAGCGTGTCTTTCCTCGATTCAATTCTCAGGGTGA	
AGATAGCGAATCTGAACAACAACTCACTCTGATGAACATCCTCGCGATA	900
CACAGAGAGAGAAAGAGAGGTGTCAACGCTTGGAGC	

**FIG. 64**

MNDLIRKYAKDQLETLKRIIEKSEGISILINGEDLSYPREVSLELPEYVE	
KFPPKASDVLEIDPEGENIGIDDIRTIKDFLNYSPELYTRKYVIVHDCER	100
MTQQAANAFLKALEEPPEYAVIVLNTRRWYLLPTIKSRVFRVVVNPKE	
FRDLVKEKIGDLWEELPLLERDFKTALEYKLGAEKLSGLMESLKVLETE	200
KLLKKVLSKGLEGYLACRELLERFSKVESKEFFALFDQVTNTITGKDAFL	
LIQRLTRIILHENTWESVEDKSVSFLDSILRVKIANLNNKLTLMNILAIH	300
RERKRGVNAWS	

**FIG. 65**

REPLACEMENT  
SHEET

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ATGTCTTTCTTCAACAAGATCATACTCATAGGAAGACTCGTGAGAGATCC  
CGAAGAGAGATACACGCTCAGCGGAACTCCAGTCACCACCTTCACCATAG 100  
CGGTGGACAGGGTTCCCAGAAAGAACGCGCCGGACGACGCTCAAACGACT  
GATTTCTTCAGGATCGTCACCTTTGGAAGACTGGCAGAGTTCGCTAGAAC 200  
CTATCTCACCAAAGGAAGGCTCGTTCTCGTCGAAGGTGAAATGAGAATGA  
GAAGATGGGAAACACCCACTGGAGAAAAGAGGGTATCTCCGGAGGTTGTC 300  
GCAAACGTTGTTAGATTCATGGACAGAAAACCTGCTGAAACAGTTAGCGA  
GACTGAAGAGGAGCTGGAAATACCGGAAGAAGACTTTTCCAGCGATACCT 400  
TCAGTGAAGATGAACCACCATTT

**FIG. 66**

MSFFNKIILIGRLVRDPEERYTLSGTPVTTFTIAVDRVPRKNAPDDAQT  
DFFRIVTFGRLAEFARTYLTGRLVLVEGEMRMRRWETPTGEKRVSPVV 100  
ANVVRFMDRKPAETVSETEEELEIPEEDFSSDTFSEDEPPF

**FIG. 67**

# REPLACEMENT SHEET

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ATGCGTGTTC	CCCCGCACA	ACTTAGAGG	CCGAAGTTG	CTGTGCTC	GGAAG	
CATATTGAT	AGATCCGT	CGGTAATA	AAACGACG	TTCTTGAA	ATTTTGA	100
ACGAAGATT	TTCTATCT	GAAAAAAC	ACCAACAC	ATCTTCAG	AGCGATG	
GAGCTTTAC	GACGAAGG	AAAACCGG	TGGACGTG	GGTTTCCG	TCTGTGAC	200
GCTTCAAAG	CATGGGAAA	ACTCGAGG	AAGTAGGT	GAGATCTG	GGAAGTGG	
CCCAGCTCG	CTGAGGCT	GTGCCCAG	TTCTGCAC	ACGCACTT	CACTACGCG	300
GAGATCGTC	AAGGAAAA	ATCCATTCT	GAGGAACT	CATTGAGAT	CTCCAG	
AAAAATCTC	AGAAAGTG	CCTACATG	GGAAGAAG	ATGTGGAG	ATCCTGCTCG	400
ACAACGCAG	AAAAGATG	ATCTTCGAG	ATCTCAGAG	ATGAAAACG	ACAAAA	
TCCTACGAT	CATCTGAG	AGGCATCAT	GCACCGGG	TGTTTGAAA	ACCTGGA	500
GAACCTTCAG	GGAAGAGG	CAACCTTAT	AGAACCCG	GTGTGCTC	ATAACGG	
GACTACCAAC	CGGATTCAA	AAAGTCTGG	ACAAACAG	ACCACAGG	GTTCCAC	600
AGCTCCGAT	CTGGTGATA	AATAGCAG	CGAGACCCT	CCATGGGAAA	ACCTC	
CTTCGCACT	CTCAATAG	CGAGGAAC	ATGGCTGT	CAATTTTCG	AAATCCCCG	700
TCGGAATAT	TCAGTCTCG	AGATGTCCA	AGGAACAG	CTCGCTCAA	AGACTA	
CTCAGCATG	GAGTCCGG	TGTGGATCT	TTACAGCAT	CAGAACAGG	ATACCT	800
GGATCAGGA	GAAGTGGG	AAAGACTC	ACAATAGC	GGCTTCTAA	ACTCTACA	
AAGCACCCAT	AGTTGTGG	ACGATGAG	TCACTCCT	CGATCCGCG	ATCGTTG	900
AGGGCAAAAG	CGAGAGG	ATGAAAAA	AGAATACG	ATGTAAAAG	CCATTTT	
TGTCGACTAT	CTCCAGCT	CATGCACCT	GAAAGGA	AGAAAAGAA	AGCAGAC	1000
AGCAGGAGAT	ATCCGAGAT	CTCGAGAT	CTCTGAAG	CTCCTTGCG	AGGGAA	
CTCGACATAG	TGGTGATAG	CGCTTTCAC	AGCTTTCG	AGGGCCGTAG	AACA	1100
GAGAGAAGAC	AAAAGACCG	AGGCTGAG	TGACCTCAG	GGAATCCGG	TGCGA	
TAGAACAGG	ACGCAGAC	ACAGTCAT	CTTCATCTA	CAGGGAGGA	ATATTAC	1200
AGGAGCAAAA	AATCCAAAG	AGGAAAGCA	AGCTTCACG	AACCTCACG	AAGC	
TGAAATCATA	ATAGGTAA	ACAGAGAA	ACGGTCCC	GTTGGAAC	GATCACTC	1300
TGATCTTCG	ACCCAGAA	ACGGTTACG	TTCCATGA	AGTCGATG	TGGTGCAT	
TCA						1353

**FIG. 68**

MRVPPHNLE	AEVAVLGS	ILIDPSVIN	DVLEILSH	EDFYLK	KKHQHIF	FRAME	
ELYDEGKPV	DVVSVC	DKLQSMGK	LEEVGGD	LEVAQLA	EAVPSSA	HALHYA	100
EIVKEKSIL	RKLIEISR	KISESAYM	EEDVEILL	DNAEKMIF	EISEMKT	TK	
SYDHLRGIM	HRVFEN	LENFRERAN	LIEPGVLIT	GLPTGFKS	LDKQTTGF	H	200
SSDLVIIA	ARPSMGK	TSFALSIA	RNMAVNFE	IPVGIFSL	EMSKEQLA	QRL	
LSMESGVD	LYSIRTGY	LDQEKWERL	ITIAASKLY	KAPIVVDD	ESLLDPR	SL	300
RAKARRMK	KEYDVKA	IFVDYLQL	MHLKGRK	ESRQQEISE	ISRSLKLL	ARE	
LDIVVIALS	QLSRAVEQ	REDKRPRL	SDLRESGA	IEQDADTV	IFIYREE	YY	400
RSKKSKEE	SKLHEPHE	AEIIIGKQ	RNGPVG	TITLIFDP	RTVTFHE	VDVH	
S							451

**FIG. 69**

# REPLACEMENT SHEET

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GTGATTCCTCGAGAGGTCATCGAGGAAATAAAAGAAAAGGTTGACATCGT	
AGAGGTCATTTCCGAGTACGTGAATCTTACCCGGGTAGGTTCCCTCCTACA	100
GGGCTCTCTGTCCCTTTCATTCAGAAACCAATCCTTCTTTCTACGTTTCAT	
CCGGGTTTGAAGATATACCATTTGTTTCGGCTGCGGTGCGAGTGGAGACGT	200
CATCAAATTTCTTCAAGAAATGGAAGGGATCAGTTTCCAGGAAGCGCTGG	
AAAGACTTGCCAAAAGAGCTGGGATTGATCTTTCTCTCTACAGAACAGAA	300
GGGACTTCTGAATACGGAAAATACATTCGTTTGTACGAAGAAACGTGGAA	
AAAGTACGTCAAAGAGCTGGAGAAATCGAAAGAGGCAAAAGACTATTTAA	400
AAAGCAGAGGCTTCTCTGAAGAAGATATAGCAAAGTTCGGCTTTGGGTAC	
GTCCCCAAGAGATCCAGCATCTCTATAGAAGTTGCAGAAGGCATGAACAT	500
AACACTGGAAGAACTTGTTCAGATACGGTATCGCGCTGAAAAAGGGTGATC	
GATTCGTTGATAGATTCTGAAGGAAGAATCGTTGTTCCAATAAAGAACGAC	600
AGTGGTCATATTGTGGCTTTTGGTGGGCGTGCTCTCGGCAACGAAGAACC	
GAAGTATTTGAACTCTCCAGAGACCAGGTATTTTTCGAAGAAGAAGACCC	700
TTTTTCTCTTCGATGAGGCGAAAAAAGTGGCAAAAGAGGTTGGTTTTTTC	
GTCATCACCGAAGGCTACTTCGACGCGCTCGCATTCAGAAAGGATGGAAT	800
ACCAACGGCGGTGCTGTTCTTGGGCGGAGTCTTTCAAGAGAGGCGATTCT	
TAAAACTTTCGGCGTATTTCGAAAAACGTCATACTGTGTTTCGATAATGAC	900
AAAGCAGGCTTCAGAGCCACTCTCAAATCCCTCGAGGATCTCCTAGACTA	
CGAATTCAACGTGCTTGTGGCAACCCCTCTCCTTACAAAGACCCAGATG	1000
AACTCTTTCAGAAAGAAGGAGAAGGTTTCATTGAAAAAGATGCTGAAAAAC	
TCGCGTTCGTTTCAATATTTTCTGGTGACGGCTGGTGAGGTCTTCTTTGA	1100
CAGGAACAGCCCCGCGGGTGTGAGATCCTACCTTTCTTCTCCTCAAAGGTT	
GGGTCCAAAAGATGAGAAGGAAAGGATATTTGAAACACATAGAAAATCTC	1200
GTGAATGAGGTTTCATCTTCTCTCCAGATACCAGAAAACCAGATTTTGAA	
CTTTTTTTGAAAGCGACAGGTCTAACACTATGCCTGTTTCATGAGACCAAGT	1300
CGTCAAAGGTTTACGATGAGGGGAGAGGACTGGCTTATTTGTTTTTTGAAC	
TACGAGGATTTGAGGGAAAAGATTCTGGAAGTGGACTTAGAGGTACTGGA	1400
AGATAAAAACGCGAGGGAGTTTTTCAAGAGAGTCTCACTGGGAGAAGATT	
TGAACAAAGTCATAGAAAACCTCCCAAAGAGCTGAAAGACTGGATTTTTT	1500
GAGACAATAGAAAGCATTCCTCCTCCAAAGGATCCCGAGAAATTCCTCGG	
TGACCTCTCCGAAAAGTTGAAAATCCGACGGATAGAGAGACGTATCGCAG	1600
AAATAGATGATATGATAAAGAAAGCTTCAAACGATGAAGAAAGGCGTCTT	
CTTCTCTCTATGAAAGTGATCTCCTCAGAAAAATAAAGAGGAGG	1695

**FIG. 70**

# REPLACEMENT SHEET

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MIPREVIEEIKEKVDIVEVISEYVNLTRVGSSYRALCPFHSETNPSFYVH	
PGLKIYHCFGCGASGDVIKFLQEMEGISFQEALERLAKRAGIDLSLYRTE	100
GTSEYGKYIRLYEETWKRYVKELEKSKEAKDYLSRGFSEEDIAKFGFGY	
VPKRSSISIEVAEGMNITLEELVRYGIALKKGDRFVDRFEGRIVVPIKND	200
SGHIVAFGGRALGNEEPKYLNSPETRYFSKKKTLFLFDEAKKVAKEVGFF	
VITEGYFDALAFRKDGIPTAVAVLGASLSREAILKLSAYSKNVILCFDND	300
KAGFRATLKSLEDLLDYEFNVLVATPSPYKDPDELFQKEGEGSLKKMLKN	
SRSFEYFLVTAGEVFFDRNSPAGVRSYLSFLKGWVQKMRKGYLKHIENL	400
VNEVSSSLQIPENQILNFFESDRSNTMPVHETKSSKVYDEGRGLAYFLN	
YEDLREKILELDLEVLLEDKNAREFFKRVSLGEDLNKVIENFPKELKDWIF	500
ETIESIPPPKDPEKFLGDLSEKLKIRRIERIAEIDDMIKKASNDEERRL	
LLSMKVDLLRKIKRR	565

## FIG. 71

ATGGCTCTACACCCGGCTCACCTGGGGCAATAATCGGGCACGAGGCCGT	
TCTCGCCCTCCTTCCCCGCTCACCGCCAGACCCTGCTCTTCTCCGGCC	100
CCGAGGGGGTGGGGCGGCGCACCGTGGCCCGCTGGTACGCCTGGGGGCTC	
AACCGCGGCTTCCCCCGCCCTCCCTGGGGGAGCACCCGGACGTCCTCGA	200
GGTGGGGCCCAAGGCCCGGGACCTCCGGGGCCGGGCGGAGGTGCGGCTGG	
AGGAGGTGGCGCCCCCTCTTGAGTGGTGCTCCAGCCACCCCCGGGAGCGG	300
GTGAAGGTGGCCATCCTGGACTCGGCCCACCTCCTCACCGAGGCCGCCGC	
CAACGCCCTCCTCAAGCTCCTGGAGGAGCCCCCTTCTACGCCCGCATCG	400
TCCTCATCGCCCCAAGCCGCGCCACCCTCCTCCCCACCCTGGCCTCCCGG	
GCCACGGAGGTGGCATTCGCCCCCGTGCCCGAGGAGGCCCTGCGCGCCCT	500
CACCCAGGACCCGGAGCTCCTCCGCTACGCCCGCCGGGGCCCCGGGCCGCC	
TCCTTAGGGCCCTCCAGGACCCGGAGGGGTACCGGGCCCGCATGGCCAGG	600
GCGCAAAGGGTCTTGAAAGCCCCGCCCTGGAGCGCCTCGCTTTGCTTCG	
GGAGCTTTTGGCCGAGGAGGAGGGGGTCCACGCCCTCCACGCCGTCCTAA	700
AGCGCCCGGAGCACCTCCTTGCCCTGGAGCGGGCGGGGAGGCCCTGGAG	
GGGTACGTGAGCCCCGAGCTGGTCCTCGCCCGGCTGGCCTTAGACTTAGA	800
GACA	

## FIG. 72

MALHPAHPGAIIGHEAVLALLPRLTAQTLLFSGPEGVGRRTVARWYAWGL	
NRGFPPPSLGEHPDVLEVGPKARDLRGRAEVRLEEVAPLLEWCSSHPRER	100
VKVAILDSAHLLTEAAANALLKLLLEPPSYARIVLIAPSRATLLPTLASR	
ATEVAFAPVPEEALRALTQDPELLRYAAGAPGRLLRALQDPEGYRARMAR	200
AQRVLKAPPLERLALLRELLAEEEGVHALHAVLKRPEHLLALERAREALE	
GYVSPELVLARLALDLET	268

## FIG. 73



# REPLACEMENT SHEET

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ATGCTGGACCTGAGGGAGGTGGGGGAGGCGGAGTGGAAGGCCCTAAAGCC	
CCTTTTGAAAGCGTGCCCGAGGGCGTCCCCGTCCTCCTCCTGGACCCTA	100
AGCCAAGCCCCCTCCCGGGCGGCCTTCTACCGGAACCGGGAAAGGCGGGAC	
TTCCCCACCCCCAAGGGGAAGGACCTGGTGCGGCACCTGGAAAACCGGGC	200
CAAGCGCCTGGGGCTCAGGCTCCCGGGCGGGGTGGCCCAGTACCTGGCCT	
CCCTGGAGGGGGACCTCGAGGCCCTGGAGCGGGAGCTGGAGAAGCTTGCC	300
CTCCTCTCCCCACCCCTCACCCCTGGAGAAGGTGGAGAAGGTGGTGGCCCT	
GAGGCCCCCCTCACGGGCTTTGACCTGGTGCGCTCCGTCCTGGAGAAGG	400
ACCCCAAGGAGGCCCTCCTGCGCCTAGGCGGCCTCAAGGAGGAGGGGGAG	
GAGCCCCTCAGGCTCCTCGGGGCCCTCTCCTGGCAGTTCGCCCTCCTCGC	500
CCGGGCCTTCTTCCTCCTCCGGGAAAACCCCAAGGAGGAGGACC	
TCGCCCCCCTCGAGGCCCACCCCTACGCCGCCCGCCGCGCCCTGGAGGCG	600
GCGAAGCGCCTCACGGAAGAGGCCCTCAAGGAGGCCCTGGACGCCCTCAT	
GGAGGCGGAAAAGAGGGCCAAGGGGGGGAAAGACCCGTGGCTCGCCCTGG	700
AGGCGGCGGTCTCTCCGCCTCGCCCGTTGA	

**FIG. 74**

MVIAFTGDPFLAREALLEEARLRGLSRFTEPTPEALAQALAPGLFGGGGA	
MLDLREVGEAEWKALKPLLESVPEGVPVLLDDPKPSPSRAAFYRNRERRD	100
FPTPKGKDLVRHLENRAKRLGLRLPGGVAQYLASLEGDLEALERELEKLA	
LLSPPLTLEKVEKVVALRPPLTGFDLVRVLEKDPKEALLRLGGLKEEGE	200
EPLRLLGALSWQFALLARAFFLLRENPRPKEEDLARLEAHPYAARRALEA	
AKRLTEEALKEALDALMEAEKRAKGGKDPWLALEAAVLRRLAR	292

**FIG. 75**

# REPLACEMENT SHEET

74/83

ATGGCTCGAGGCCTGAACCGCGTTTTTCCTCATCGGGCGCCCTCGCCACCCG	
GCCGGACATGCGCTACACCCCGGCGGGGCTCGCCATTTTGGACCTGACCC	100
TCGCCGGTCAGGACCTGCTTCTTTCCGATAACGGGGGGGAACCGGAGGTG	
TCCTGGTACCACCGGGTGAGGCTCTTAGGCCGCCAGGCGGAGATGTGGGG	200
CGACCTCTTGACCAAGGGCAGCTCGTCTTCGTGGAGGGCCGCCTGGAGT	
ACCGCCAGTGGGAAAGGGAGGGGGAGAAGCGGAGCGAGCTCCAGATCCGG	300
GCCGACTTCCGGACCCCTGGACGACCGGGGGAAGAAGCGGGCGGAGGAC	
AGCCGGGGCCAGCCCAGGCTCCGCGCCGCCCTGAACCAGGTCTTCCTCAT	400
GGGCAACCTGACCCGGGACCCGGAACCTCCGCTACACCCCCCAGGGCACCG	
CGGTGGCCCGGCTGGGCCTGGCGGTGAACGAGCGCCGCCAGGGGGCGGAG	500
GAGCGCACCCACTTCGTGGAGGTTTCAGGCCTGGCGCGACCTGGCGGAGTG	
GGCCGCCGAGCTGAGGAAGGGCGACGGCCTTTTCGTGATCGGCAGGTG	600
TGAACGACTCCTGGACCAGCTCCAGCGGCGAGCGGCGCTTCCAGACCCGT	
GTGGAGGCCCTCAGGCTGGAGCGCCCCACCCGTGGACCTGCCAGGCCTG	700
CCCAGGCCGGCGGAACAGGTCCCGCGAAGTCCAGACGGGTGGGGTGGACA	
TTGACGAAGGCTTGGAAGACTTTCGCGCGGAGGAGGATTGCGGTTTGA	800
GCACGAA	

**FIG. 76**

MARGLNRVFLIGALATRPDMRYTPAGLAILDLTLAQDLLLLSDNGGEPEV	
SWYHRVRLLRQAEMWGDLLDQGQLVFVEGRLEYRQWEREGEKRSELQIR	100
ADFLDPLDDRGGKKRAEDSRGPRLRAALNQVFLMGNLTRDPELRYTPQGT	
AVARLGLAVNERRQGAERTHFVEVQAWRDLAEWAAELRKGDGLFVIGRL	200
VNDSWTSSSGERRFQTRVEALRLERPTRGPAQACPGRRNRSREVQTGGVD	
IDEGLEDFPPEEDLPF	266

**FIG. 77**

# REPLACEMENT SHEET

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AATTCGGACATTTCAATTGAATCGTTTATTCCGCTTGAAAAAGAAGGCAA	
GTTGCTCGTTGATGTGAAAAGACCGGGGAGCATCGTACTGCAGGCGCGCT	100
TTTTCTCTGAAATCGTGAAAAAACTGCCGCAACAAACGGTGGAATCGAA	
ACGGAAGACAACCTTTTTGACGATCATCCGCTCGGGGCACTCAGAATCCG	200
CCTCAATGGGCTAAACGCCGACGAATATCCGCGCCTGCCGCAAATTGAAG	
AAGAAAACGTGTTTCAAATCCCGGCTGATTTATTGAAAACCGTGATTCGG	300
CAAACGGTGTTTCGCCGTTTCTACATCGGAAACGCGCCCAATCTTGACAGG	
TGTCAACTGGAAAGTTGAACATGGCGAGCTTGTCTGCACAGCGACCGACA	400
GTCATCGCTTAGCCATGCGCAAAGTGAAAATTGAGTCGGAAAATGAAGTA	
TCATACAACGTCGTCATCCCTGGAAAAAGTCTTAATGAGCTCAGCAAAAT	500
TTTGGATGACGGCAACCACCCGGTGACATCGTCATGACAGCCAATCAAG	
TGCTATTTAAGGCCGAGCACCTTCTCTTCTTTTCCCGGCTGCTTGACGGC	600
AACTATCCGGGAGACGGCCCGCTTGATTCCAACAGAAAGCAAAACGACCAT	
GATCGTCAATGCAAAAGAGTTTCTGCAGGCAATCGACCGAGCGTCCTTGC	700
TTGCTCGAGAAGGAAGGAACAACGTTGTGAAACTGACGACGCTTCCTGGA	
GGAATGCTCGAAATTTCTTCGATTCTCCGAGATCGGGAAAGTGACGGAG	800
CAGCTGCAAACGGAGTCTCTTGAAGGGGAAGAGTTGAACATTTTCGTTTCA	
CGCGAAATATATGATGGACGCGTTGCGGGCGCTTGATGGAACAGACATTT	900
CAAATCAGCTTCACTGGGGCCATGCGGCCGTTCTGTGCGCCCGCTTCA	
ACCGATTTCGATGCTTCAGCTCATTTTGCCGGTGAGAACATAT	992

**FIG. 78**

NSDISIIIESFIPLEKEGKLLVDVKRPGSIVLQARFFSEIVKKLPQQTVEI	
ETEDNFLTIIRSGHSEFRLNGLNADEYPRLPQIEEENVFQIPADLLKTVI	100
RQTVFAVSTSETRPILTGVDNWKVEHGELVCTATDSHRLAMRKVKIIESEN	
EVSYNVVIPGKSLNELSKIILDDGNHPVDIVMTANQVLFKAEHLLFFSRL	200
LDGNYPETARLIPTESKTTMIVNAKEFLQAIDRASLLAREGRNNVVKLT	
LPGGMLEISSISPEIGKVTEQLQTESLEGEELNISFSAKYMMDALRALDG	300
TDIQISFTGAMRPFLLRPLHTDSMLQLILPVRTY	

**FIG. 79**

REPLACEMENT  
SHEET

76/83

ATGATTAACCGCGTCATTTTGGTCGGCAGGTTAACGAGAGATCCGGAGTT	
GCGTTACACTCCAAGCGGAGTGGCTGTTGCCACGTTTACGCTCGCGGTCA	100
ACCGTCCGTTTACAAATCAGCAGGGCGAGCGGGAAACGGATTTTATTCAA	
TGTGTCGTTTGGCGCCGCCAGGCGGAAAACGTCGCCAACTTTTTGAAAAA	200
GGGGAGCTTGGCTGGTGTGTCGATGGCCGACTGCAAACCCGCAGCTATGAAA	
ATCAAGAAGGTCGGCGTGTGTACGTGACGGAAGTGGTGGCTGATAGCGTC	300
CAATTTCTTGAGCCGAAAGGAACGAGCGAGCAGCGAGGGGCGACAGCAGG	
CGGCTACTATGGGGATCCATTCCCATTCGGGCAAGATCAGAACCACCAAT	400
ATCCGAACGAAAAAGGGTTTGGCCGCATCGATGACGATCCTTTCGCCAAT	
GACGGCCAGCCGATCGATATTTCTGATGATGATTTGCCGTTT	492

**FIG. 80**

MINRVILVGRLTRDPELRYTPSGVAVATFTLAVNRPFTNQSYENQEGRRV	
YVTEVVADSVQFLEPKGTSEQRGATAGGYQGERETDFIQCVVWRRQAEN	100
VANFLKKGSLAGVDGRLQTRGDPFPFGQDQNHQYPNEKGFGRIDDDPFAN	
DGQPIDISDDDLPF	164

**FIG. 81**

# REPLACEMENT SHEET

77/83

ATGCTGGAACGCGTATGGGGAAACATTGAAAAACGGCGTTTTTCTCCCCT	
TTATTTATTATACGGCAATGAGCCGTTTTTATTAACGGAAACGTATGAGC	100
GATTGGTGAACGCAGCGCTTGGCCCCGAGGAGCGGGAGTGGAACCTGGCT	
GTGTACGACTGCGAGGAAACGCCGATCGAGGCGGCGCTTGAGGAGGCCGA	200
GACGGTGCCGTTTTTTCGGCGAGCGGCGTGTCATTCTCATCAAGCATCCAT	
ATTTTTTTTACGTCTGAAAAAGAGAAGGAGATCGAACATGATTTGGCGAAG	300
CTGGAGGCGTACTTGAAGGCGCCGTCGCCGTTTTTCGATCGTCGTCTTTTT	
CGCGCCGTACGAGAAGCTTGATGAGCGAAAAAAATTACGAAGCTCGCCA	400
AAGAGCAAAGCGAAGTCGTCATCGCCGCCCGCTCGCCGAAGCGGAGCTG	
CGTGCCCTGGGTGCGGCGCCGCATCGAGAGCCAAGGGGCGCAAGCAAGCGA	500
CGAGGCGATTGATGTCCTGTTGCGGCGGGCCGGGACGCAGCTTTCCGCCT	
TGGCGAATGAAATCGATAAATTGGCCCTGTTTGCCGGATCGGGCGGAACC	600
ATCGAGGCGGCGGCGGTTGAGCGGCTTGTCGCCCGCACGCCGGAAGAAAA	
CGTATTTGTGCTTGTCGAGCAAGTGCGCAAGCGCGACATTCCAGCAGCGT	700
TGCAGACGTTTTATGATCTGCTTGAAAACAATGAAGAGCCGATCAAAATT	
TTGGCGTTGCTCGCCGCCCATTTCCGCTTGCTTTCGCAAGTGAAATGGCT	800
TGCCTCCTTAGGCTACGGACAGGCGCAAATTGCTGCGGCGCTCAAGGTGC	
ACCCGTTCCGCGTCAAGCTCGCTCTTGCTCAAGCGGCCCGCTTCGCTGAC	900
GGAGAGCTTGCTGAGGCGATCAACGAGCTCGCTGACGCCGATTACGAAGT	
GAAAAGCGGGGCGGTTCGATCGCCGGTTGGCCGTTGAGCTGCTTCTGATGC	1000
GCTGGGGCGCCCCGCCCGCGCAAGCGGGGCGCCACGGCCGGCGG	

**FIG. 82**

MLERVWGNIEKRRFSPLYLLYGNEPFLLTETYERLVNAALGPEEREWNLA	
VYDCEETPIEAALAEAETVPFFGERRVILIKHPYFFTSEKEKEIEHDLAK	100
LEAYLKAPSPFSIVVFFAPYEKLDERKKITKLAKSEQSEVVIAAPLAEDEL	
RAWVRRRIESQGAQASDEAIDVLLRRAGTQLSALANEIDKLALFAGSGGT	200
IEAAVERLVARTPEENVFVLVEQVAKRDI PAALQTFYDLLENNEEPIKI	
LALLAAHFRLLSQVKWLASLGYGQAQIAAALKVHPFRVKLALQAARFAD	300
GELAEAINELADADYEVKSGAVDRRLAVELLMRWGARPAQAGRHGR	

**FIG. 83**

REPLACEMENT  
SHEET

78/83

ATGCGATGGGAACAGCTAGCGAAACGCCAGCCGGTGGTGGCGAAAATGCT	
GCAAAGCGGCTTGGA AAAAGGGCGGATTTCTCATGCGTACTTGTTTGAGG	100
GGCAGCGGGGGACGGGCAAAAAGCGGCCAGTTTGTTGTTGGCGAAACGT	
TTGTTTTGTCTGTCCCCAATCGGAGTTTCCCCGTGTCTAGAGTGCCGCAA	200
CTGCCGGCGCATCGACTCCGGCAACCACCCTGACGTCCGGGTGATCGGCC	
CAGATGGAGGATCAATCAAAAAGGAACAAATCGAATGGCTGCAGCAAGAG	300
TTCTCGAAAACAGCGGTTCGAGTCGGATAAAAAAATGTACATCGTTGAGCA	
CGCCGATCAAATGACGACAAGCGCTGCCAACAGCCTTCTGAAATTTTTGG	400
AAGAGCCGCATCCGGGGACGGTGGCGGTATTGCTGACTGAGCAATACCAC	
CGCCTGCTAGGGACGATCGTTTCCCGCTGTCAAGTGCTTTCGTTCCGGCC	500
GTTGCCCGCCGGCAGAGCTCGCCCAGGGACTTGTCGAGGAGCACGTGCCGT	
TGCCGTTGGCGCTGTTGGCTGCCCATTTGACAAACAGCTTCGAGGAAGCA	600
CTGGCGCTTGCCAAAGATAGTTGGTTTGCCGAGGCGCGAACATTAGTGCT	
ACAATGGTATGAGATGCTGGGCAAGCCGGAGCTGCAGCTTTTGTTTTTCA	700
TCCACGACCGCTTGTTTCCGCATTTTTTGGAAAGCCATCAGCTTGACCTT	
GGACTTG	757

**FIG. 84**

MRWEQLAKRQPVVAKMLQSGLEKGRISHAYLFEGQRGTGKKAASLLAKR	
LFCLSPIGVSPCLECRNCRIDSGNHPDVRVIGPDGGSIKKEQIEWLQQE	100
FSKTAVESDKMYIVEHADQMTTSAANSLLKFLEEPHPGTVAVLLTEQYH	
RLLGTIVSRCQVLSFRPLPPAELAQGLVEEHVPLPLALLAAHLTNSFEEA	200
LALAKDSWFAEARTLVLQWYEMLGKPELQLLFFIHDRLFPHFLESHQLDL	
GL	252

**FIG. 85**

# REPLACEMENT SHEET

79/83

GTGGCATACCAAGCGTTATATCGCGTGTTTCGGCCGCAGCGCTTTGCGGA	
CATGGTCGGCCAAGAACACGTGACCAAGACGTTGCAAAGCGCCCTGCTTC	100
AACATAAAATATCGCACGCTTACTTATTTTCCGGCCCCGCGCGGTACAGGA	
AAAACGAGCGCAGCGAAAATTTTCGCCAAGGCGGTCAACTGTGAACAGGC	200
GCCAGCGGCGGAGCCATGCAATGAGTGTCCAGCTTGCCCTCGGCATTACGA	
ATGGAACGGTTCCTGATGTGCTGGAAATTGACGCTGCTTCCAACAACCGC	300
GTCGATGAAATTCGTGATATCCGTGAGAAGGTGAAATTTGCGCCAACGTC	
GGCCCGCTACAAAGTGTATATCATCGACGAGGTGCATATGCTGTGATCG	400
GTGCGTTTAACGCGCTGTTGAAAACGTTGGAGGAGCCGCCGAAACACGTC	
ATTTTCATTTTGGCCACGACCGAGCCGCACAAAATTCGGGCGACGATCAT	500
TTCCCGCTGCCAACGGTTCGATTTTTCGCCGCATCCCGCTTCAGGCGATCG	
TTTCACGGCTAAAGTACGTGCAAGCGCCCAAGGTGTCGAGGCGTCAGAT	600
GAGGCATTGTCCGCCATCGCCCGTGCTGCAGACGGGGGATGCGCGATGC	
GCTCAGCTTGCTTGATCAAGCCATTTTCGTTTCAGCGACGGGAAACTTCGGC	700
TCGACGACGTGCTGGCGATGACCGGGGCTGCATCATTTGCCGCCTTATCG	
AGCTTCATCGAAGCCATCCACCGCAAAGATACAGCGGCGGTTCTTCAGCA	800
CTTGGAACGATGATGGCGCAAGGGAAAGATCCGCATCGTTTGTTGAAAG	
ACTTGATTTTGTACTATCGCGATTTATTTGCTGTACAAAACCGCTCCCTAT	900
GTGGAGGGAGCGATTCAAATTGCTGTCGTTGACGAAGCGTTCACCTCACT	
GTCGGAAATGATTCCGGTTTCCAATTTATACGAGGCCATCGAGTTGCTGA	1000
ACAAAAGCCAGCAAGAGATGAAGTGGACAAACCACCGCGCCTTCTGTTG	
GAAGTGGCGCTTGTGAAACTTTGCCATCCATCAGCCGCCGCCCGTCGCT	1100
GTCGGCTTCCGAGTTGGAACCGTTGATAAAGCGGATTGAAACGCTGGAGG	
CGGAATTGCGGCGCCTGAAGGAACAACCGCCTGCCCTCCGTCGACCGCC	1200
GCGCCGGTGAAAAAACTGTCCAAACCGATGAAAACGGGGGGATATAAAGC	
CCCGGTTGGCCGCATTTACGAGCTGTTGAAACAGGCGACGCATGAAGATT	1300
TAGCTTTGGTGAAAGGATGCTGGGCGGATGTGCTCGACACGTTGAAACGG	
CAGCATAAAGTGTGCGCACGCTGCCTTGCTGCAAGAGAGCGAGCCGGTTGC	1400
AGCGAGCGCCTCAGCGTTTGTATTAAATTCAAATACGAAATCCACTGCA	
AAATGGCGACCGATCCCACAAGTTCGGTCAAAGAAAACGTCGAAGCGATT	1500
TTGTTTGAGCTGACAAACCGCCGCTTTGAAATGGTAGCCATTCCGGAGGG	
AGAATGGGGAAAAATAAGAGAAGAGTTCATCCGCAATAAGGACGCCATGG	1600
TGGAAAAAAGCGAAGAAGATCCGTAAATCGCCGAAGCGAAGCGGCTGTTT	
GGCGAAGAGCTGATCGAAATTAAAGAA	1677

**FIG. 86**

REPLACEMENT  
SHEET

80/83

VAYQALYRVFRPQRFADMVGQEHVTKTLQSALLQHKISHAYLFSGPRGTG	
KTSAAKIFAKAVNCEQAPAAEPCNECPACLGITNGTVPDVLEIDAASNNR	100
VDEIRDIREKVKFAPTSARYKVYIIDEVHMLSIGAFNALLKTLEPPKHV	
IFILATTEPHKIPATIIISRCQRFDFRRIPLQAIVSRLKYVASAQGVEASD	200
EALSAIARAADGGMRDALSLLDQAISSFSDGKLRLDDVLAMTGAASFAALS	
SFIEAIHRKDTAAVLQHLETMMAQGKDPHRLVEDLILYYRDLLLYKTAPY	300
VEGAIQIAVVDEAFTSLSEMIPVSNLYEAIELLNKSQQEMKWTNHPRLLL	
EVALVKLCHPSAAAPSLSASELEPLIKRIETLEAELRRLKEQPPAPPSTA	400
APVKKLSKPMKTGGYKAPVGRIYELLKQATHEDLALVKGWADVLDTLKR	
QHKVSHAALLQSEPVAAASAFVLKFKYEIHCKMATDPTSSVKENVEAI	500
LFELTNRRFEMVAIPEGEWGKIREEFIRNKDAMVEKSEEDPLIAEAKRLF	
GEELIEIKE	559

**FIG. 87**



# REPLACEMENT SHEET

81/83

ATGGTGACAAAAGAGCAAAAAGAGCGGTTTCTCATCCTGCTTGAGCAGCT	
GAAGATGACGTCGGACGAATGGATGCCGCATTTTCGTGAGGCAGCCATTC	100
GCAAAGTCGTGATCGATAAAGAGGAGAAAAGCTGGCATTTTTATTTTCAG	
TTCGACAACGTGCTGCCGGTTCATGTATACAAAACGTTTGCCGATCGGCT	200
GCAGACGGCGTTCCGCCATATCGCCGCCGTCCGCCATACGATGGAGGTCG	
AAGCGCCGCGCGTAACGAGGCGGATGTGCAGGCGTATTGGCCGCTTTGC	300
CTTGCCGAGCTGCAAGAAGGCATGTCGCCGCTTGTCGATTGGCTCAGCCG	
GCAGACGCCTGAGCTGAAAGGAAACAAGCTGCTTGTCGTTGCCCGCCATG	400
AAGCGGAAGCGCTGGCGATCAAACGGCGGTTCCGCCAAAAAATCGCTGAT	
GTGTACGCTTCGTTTGGGTTTCCCCCCTTCAGCTTGACGTCAGCGTCGA	500
GCCGTCCAAGCAAGAAATGGAACAGTTTTTTGGCGCAAAAACAGCAAGAGG	
ACGAAGAGCGAGCGCTTGCTGTACTGACCGATTTAGCGAGGGAAGAAGAA	600
AAGGCCGCGTCTGCGCCGCCGTCCGGTCCGCTTGTCATCGGCTATCCGAT	
CCGCGACGAGGAGCCGGTGCGGCGGCTTGAAACGATCGTCGAAGAAGAGC	700
GGCGCGTCTGTTGTGCAAGGCTATGTATTTGACGCCGAAGTGAGCGAATTA	
AAAAGCGGCCGACGCTGTTGACCATGAAAATCACAGATTACACGAACTC	800
GATTTTAGTCAAAATGTTCTCGCGCGACAAAGAGGACGCCGAGCTTATGA	
GCGGCGTCAAAAAGGCATGTGGGTGAAAGTGCGCGGCAGCGTGCAAAAC	900
GATACGTTTCGTCCGTGATTGTTGTCATCATCGCCAACGATTTGAACGAAAT	
CGCCGCAAACGAACGGCAAGATACGGCGCCGGAAGGGGAAAAGAGGGTCG	1000
AGCTCCATTTGCATACCCCGATGAGCCAAATGGACGCGGTCACCTCGGTG	
ACAAAACATCATTGAGCAAGCGAAAAAATGGGGGCATCCGGCGATCGCCGT	1100
CACCGACCATGCCGTGTTTCAGTCGTTTCCGGAGGCCTACAGCGCGGCGA	
AAAAACACGGCATGAAGGTCATTTACGGCCTTGAGGCGAACATCGTCGAC	1200
GATGGCGTGCCGATCGCCTACAATGAGACGCACCGCCGTCTTTCGGAGGA	
AACGTACGTCTGCTTTGACGTCGAGACGACGGGCCTGTGCGCTGTGTACA	1300
ATACGATCATTGAGCTGGCGGCGGTGAAAGTGAAAGACGGCGAGATCATC	
GACCGATTTCATGTCGTTTGCCAACCCTGGACATCCGTTGTCGGTGACAAC	1400
GATGGAGCTGACTGGGATCACCGATGAGATGGTGAAAGACGCCCCGAAGC	
CGGACGAGGTGCTAGCCCGTTTTTGTGACTGGGCGGCGATGCGACGCTT	1500
GTTGCCACAAACGCCAGCTTTGACATCGGTTTTTTTAAACGCGGGCCTCGC	
TCGCATGGGGCGCGGCAAAATCGCGAATCCAGTCATCGATACGCTCGAGC	1600
TGGCCCGTTTTTTATACCCGGATTGAAAAACCATCGGCTCAATACATTG	
TGCAAAAAATTTGACATTGAATTGACGCAGCATCACCGCGCCATCTACGA	1700
CGCGGAGGCGACCGGGCATTGCTTATGCGGCTGTTGAAGGAAGCGGAAG	
AGCGCGGCATACTGTTTCATGACGAATTAAACAGCCGCACGCACAGCGAA	1800
GCGTCCATATCGGCTTGCGCGCCCGTTCCATGTGACGCTGTTGGCGCAAAA	
CGAGACTGGATTGAAAAATTTGTTCAAGCTTGTTGTCATTGTCGCACATTC	1900
AATATTTTACCCGTGTGCGCGCATCCCGCGCTCCGTGCTCGTCAAGCAC	
CGCGACGGCCTGCTTGTCGGCTCGGGCTGCGACAAAGGAGAGCTGTTTGA	2000
CAACTTGATCCAAAAGCGCGCGGAAGAAGTCGAAGACATCGCCCGTTTTT	
ACGATTTTCTTGAAGTGCATCCGCCGACGTGTACAAGCCGCTCATCGAG	2100
ATGGATTATGTGAAAGACGAAGAGATGATCAAAAACATCATCCGCAGCAT	
CGTCGCCCTTGGTGAGAAGCTTGACATCCCGGTTGTCGCCACTGGCAACG	2200

**FIG. 88A**

# REPLACEMENT SHEET

82/83

TCCATTACTTGAACCCAGAAGATAAAATTTACCGGAAAATCTTAATCCAT	
TCGCAAGGCGGGGCGAATCCGCTCAACCGCCATGAACTGCCGGATGTATA	2300
TTTCCGTACGACGAATGAAATGCTTGACTGCTTCTCGTTTTTAGGGCCGG	
AAAAAGCGAAGGAAATCGTCGTTGACAACACGCAAAAAATCGCTTCGTTA	2400
ATCGGCGATGTCAAGCCGATCAAAGATGAGCTGTATACGCCGCGCATTGA	
AGGGGCGGACGAGGAAATCAGGGAAATGAGCTACCGGCGGGCGAAGGAAA	2500
TTTACGCGGACCCGTTGCCGAAACTTGTTGAAGAGCGGCTTGAGAAGGAG	
CTAAAAAGCATCATCGGCCATGGCTTTGCCGTCAATTTATTTGATCTCGCA	2600
CAAGCTTGTGAAAAAATCGCTCGATGACGGCTACCTTGTCGGGTCGCGCG	
GATCGGTCGGCTCGTCGTTTGTGCGGACGATGACGGAAATCACCGAGGTC	2700
AATCCGCTGCCGCCGCATTACGTTTGCCCGAACTGCAAGCATTCGGAGTT	
CTTTAACGACGGTTCAGTCGGCTCAGGGTTTGATTGCGCGGATAAAAACT	2800
GCCCCGCGATGTGGGACGAAATACAAGAAAGACGGGCACGACATCCCGTTT	
GAGACGTTTCTCGGCTTTAAAGGCGACAAAGTGCCGGATATCGACTTGAA	2900
CTTTTCCGGCGAATACCAGCCGCGCGCCCACTATACGAAAGTGCTGT	
TTGGCGAAGACAACGTCTACCGCGCCGGGACGATTGGCACGGTCGCTGAC	3000
AAAACGGCGTACGGATTTGTCAAAGCGTATGCGAGCGACCATAACTTAGA	
GCTGCGCGGCGCGGAAATCGACGGCTCGCGGCTGGCTGCACCGGGGTGAA	3100
GCGGACGACCGGGCAGCATCCGGGCGGCATCATCGTCGTCCCGGATTATA	
TGGAAATTTACGATTTTACGCCGATTCAATATCCGGCCGATGACACGTCC	3200
TCTGAATGGCGGACGACCCATTTGACTTCCATTTCGATCCACGACAATTT	
GTTGAAGCTCGATATTCTCGGGCACGACGATCCGACGGTCATTTCGCATGC	3300
TGCAAGATTTAAGCGGCATCGATCCGAAAACGATCCCGACCGACGACCCG	
GATGTGATGGGCATTTTCAGCAGCACCGAGCCGCTTGCGGTTACGCCGGA	3400
GCAAATCATGTGCAATGTCGGCACGATCGGCATTCCGGAGTTTGGCACGC	
GCTTCGTTCCGGCAAATGTTGGAAGAGACAAGGCCAAAAACGTTTTCCGAA	3500
CTCGTGCAAATTTCCGGCTTGTCGCACGGCACCGATGTGTGGCTCGGCAA	
CGCGCAAGAGCTCATTCAAACGGCACGTGTACGTTATCGGAAGTCATCG	3600
GCTGCCGCGACGACATTATGGTCTATTTGATTTACCGCGGGCTCGAGCCG	
TCGCTCGCTTTTAAAATCATGGAATCCGTGCGCAAAGGAAAAGGCTTAAC	3700
GCCGGAGTTTGAAGCAGAAATGCGCAAACATGACGTGCCGGAGTGGTACA	
TCGATTCATGCAAAAAAATCAAGTACATGTTCCCGAAAGCGCACGCCGCC	3800
GCCTACGTGTTAATGGCGGTGCGCATCGCCTACTTTAAGGTGCACCATCC	
GCTTTTGTATTACGCGTCGTACTTTACGGTGCGGGCGGAGGACTTTGACC	3900
TTGACGCCATGATCAAAGGATCACCCGCCATTTCGCAAGCGGATTGAGGAA	
ATCAACGCCAAAGGCATTCAGGCGACGGCGAAAGAAAAAAGCTTGCTCAC	4000
GGTTCTTGAGGTGGCCTTAGAGATGTGCGAGCGCGGCTTTTCCTTTAAAA	
ATATCGATTTGTACCGCTCGCAGGCGACGGAATTCGTCATTGACGGCAAT	4100
TCTCTCATTCCGCCGTTCAACGCCATTCCGGGGCTTGGGACGAACGTGGC	
GCAGGCGATCGTGCGCGCCCGCGAGGAAGGCGAGTTTTTGTGCAAGGAGG	4200
ATTTGCAACAGCGCGGCAAATTGTGCAAAACGCTGCTCGAGTATCTAGAA	
AGCCGCGGCTGCCTTGACTCGCTTCCAGACCATAACCAGCTGTCGCTGTT	4300

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**FIG. 88B**

# REPLACEMENT SHEET

83/83

MVTKEQKERFLILLEQLKMTSDEWMPHFREAAIRKVVIDKEEKSWHIFYFQ	
FDNVLPVHVYKTFADRLQTAFRHIAAVRHTMEVEAPRVTEADVQAYWPLC	100
LAELQEGMSPLVDWLSRQTPELKGNKLLVVARHEAEALAIKRRFAKKIAD	
VYASFGFPPLQLDVSVEPSKQEMEQLAQKQOEDEERALAVLTDLAREEE	200
KAASAPPSGPLVIGYPİRDEEPVRRLETİVEEERRVVVQGYVFDAEVSEL	
KSGRTLLTMKITDYTN SILVKMFSRDKEDAELMSGVKKGMWVKVRGSVQN	300
DTFVRDLV I IANDLNEIAANERQDTAPEGEKRVELHLHTPMSQMDAVTSV	
TKLİEQAKKWGHPAIAVTDHAVVQSFPEAYSAAKKHGMKVIYGLEANIVD	400
DGVPIAYNETHRRLSEETYVVFDEVTTGLSAVYNTIIELAAVKVKDGEII	
DRFMSFANPGHPLSVTTMELTGITDEMVKDAPKPDEVLARFVDWAGDATL	500
VAHNASFDIGFLNAGLARMGRGKIANPVIDTLELARFLYPDLKNHRLNTL	
CKKFDİELTQHHRAIYDAEATGHLLMRLLEAEERGILFHDELNSRTHSE	600
ASYRLARPFHVTL LAQNETGLKNLFKLVSLSHIQYFHRVPRI PRSVLVKH	
RDGLLVGSGCDKGELFDNLIQKAPEEVEDİARFYDFLEVHPPDVYKPLİE	700
MDYVKDEEMIKNI İRSİVALGEKLDİPVVATGNVHYLNPEDKIYRKİLİH	
SQGGANPLNRHELDPVYFRİTTNEMLDCFSFLGPEKAKEİVVDNTQKİASL	800
İGDVKPIKDELYTPRIEGADEEİREMSYRRAKEİYGDPLPKLVEERLEKE	
LKSIİGHGFAVIYLIŞHKLVKKSLDDGYLVGSRGSVGSSFVATMTEİTEV	900
NPLPPHYVCPNCKHSEFFNDGSGVGSGFDLPDKNCPRCGTKYKKDGHDİPF	
ETFLGFGDKVPDİDLNFSGEYQPRAHNYTKVLFGEDNVYRAGTİGTVAD	1000
KTAYGFVKAYASDHNLELRGAEİDLAAGCTGVKRTTGQHPGGİİVVPDYM	
EİYDFTPIQYPADDTSSEWRİTHFDHFSİHDNLLKLDİLGHDDPTVİRMİL	1100
QDLSGİDPKİTİPTDDPDVMGİFSSTEPLGVTPEQİMCNVGTİGİPEFGTR	
FVRQMİEETRPKİTİSELVQİSGLSHGİTDVWLGN AQELİQNGİTCTİLSEVİG	1200
CRDDİMVYLIYRGİLEPSİLAFKİMESVRKGKGLTPEFEAEMRKİHDVPEWYİ	
DSCKKİKYMFPKAAHAAAYVİMAVRIAYFKVHHPLLYYASYFTVRAEDFDL	1300
DAMİKGSPAIRKRIEİİNAKGİQATAKEKSLİTVLEVAİEMCERGFİSKN	
İDLİRSQATEFVİDGNSİLİPPFNAİPGLGTNVAQAIVRAREEGEFLSKED	1400
LQQRGKLSKİTLLEYİLESRGCLDSLİPDHNQİLSİF	

**FIG. 89**